DEPARTMENT OF EDUCATION
UNIVERSITY OF HELSINKI

RESEARCH BULLETIN 100

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TEAMS AS BREAKERS OF TRADITIONAL WORK PRACTICES

A Longitudinal Study of Planning and Implementing Curriculum Units in Elementary School Teacher Teams

Academic Dissertation to be publicly examined, by due permission of the Faculty of Education at the University of Helsinki, in the Festivity Hall at the Department of Education, Bulevardi 18, on August 20th, 1999, at 12 o'clock

Helsinki 1999

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ISBN 951-45-8675-1 (PDF version)
Helsingin yliopiston verkkojulkaisut 1999

To My Mother

1. INTRODUCTION

WHY TEACHER TEAMS?

Teachers' work in elementary schools has been in transition. Traditionally, teachers have worked alone as individual practitioners (Lortie, 1975; Nias, 1989). School as an institution has a special kind of history, and researchers have reported failures of educational reforms (Sarason, 1990; Goodlad, 1983). Lately, however, teams and networks have been introduced as potential means of reorganizing schools as workplaces for teachers. Reasons for this are several. The current trend towards breaking teachers' isolation and increasing their decision-making power has its origin within the school restructuring movement which has expanded the teachers' role to include curriculum development, participatory management of their schools, as well as membership in collaborative groups (Wagner, 1994).

Local curriculum-making has increasingly called for collaboration among teachers and other staff in Finnish schools. To plan curriculum in collaboration with the other teachers and the principal, a teacher needs to acquire such knowledge outside the school environment that can not be found in the textbooks. Student life has also changed. Students are involved in multiple social situations, and acquire knowledge from various sources beyond school. This requires of teachers to apply novel kinds of teaching practices and learning models, as well. On the other hand, emphasis on local curriculum-making has aroused concern about the ever growing differences and polarization of schools in the Finnish society.

The fact that business firms are calling for a high level of commitment and effort from their employees, and simultaneously moving to a flat, flexible, diverse, networked, and global organization, requires rethinking the relationship between the individual and the organization. It clearly implies major changes in how tasks and activities are clustered within the organization and how organizational boundaries are drawn and how they are crossed (Ancona et al., 1992).

There is abundant management literature advocating the virtues of teams. For instance, Katzenbach & Smith (1993, p. 45) have defined a

"real" team as follows: "A team is a small number of people with complementary skills who are committed to a common purpose, set of performance goals, and approach for which they hold themselves mutually accountable." According to them, a team at its best can develop, via certain phases, from a group to a "top" team. Ancona & Caldwell (1992), newertheless, point out that, rather than looking inward, there is a need to focus on team behavior that is directed outward, as an "external" perspective.

Global market and technology dynamics have made the notion of a network important. One of the key advantages of networks is their ability to disseminate new information. The network perspective emphasizes diagnosing of the clients' needs and receiving feedback on team ideas, as well. From the perspective of cost efficiency, low intensity ties, or weak ties, exact a relatively low cost from the workers to maintain them. Weak ties provide sources of new and varied information, while workers enjoying a strong tie tend to access one and the same source of information only (Granovetter, 1973; Krackhardt, 1994).

Heckscher et al. (1994) call the transition to teams and networks a transition toward a post-bureaucratic organization. The pillars of bureaucracy are being undermined. A post-bureaucratic kind of organization includes worker-participation efforts, such as: self-managing work teams; breaking across the borders of functional organization; information technology that facilitates effective networks of communication; the crucial role of back- and - forth dialogue rather than one-way communication; and new managerial roles, such as that of a change-agent.

The school organization, as well as other organizations, will have to be prepared to overcome many barriers when building its teams and networks. A closer examination of the management literature on teams and networks reveals that there has been little concrete research on collaborative work within and between teams and on their relation to their networks. Traditional studies on teams aim at finding laws of group behavior that are independent of cultural and institutional contexts. There are few studies on teams and networks that take the cultural and organizational context as an integral, constitutive aspect of the phenomena to be explained (e.g., Ancona & Caldwell, 1992; Donnellon, 1996).

Teachers' teamwork, especially the planning of curriculum units in teacher teams, is primarily performed by means of talk. Recently a wave of research has emerged on talk at work and in work teams (e.g., Case, 1995; Donnellon, 1996; Drew & Heritage, 1992; Engeström, 1996a; Mangham, 1995; Middleton, 1996; Pye, 1995; Taylor, 1995). Donnellon (1996) has stressed that discourse is central to the work of teams and that it enhances or inhibits problem solving and learning, among other things. The discourses of teams provide a window on the study of collaborative learning of its members. As Louis (1994) points out, shared discourse of teachers is among the most important tools for creating change within a school Talk among teacher teams, however, has thus far received relatively little attention (for a review, see Kärkkäinen, 1996a)..

Teams and networks represent potential for a novel kind of learning. Any task that involves plans, meetings, and joint actions with people outside your own organization - suppliers, customers, or competitors - requires learning to cooperate for mutual benefit. Building teams is a challenge for team members, since functioning as a team requires of its members the adoption of new models of thinking and new practices. A learning challenge of its own is the taking notice of the external perspective by breaking the boundaries of a teacher team. In an elementary school, the challenge is how teacher teams will use their network contacts to plan coherent curriculum units in a collaborative way, and thus enhance the learning of the teacher team as well as the students' learning opportunities in the school and in the environment in which they live.

The work of teachers is moving toward network building (e.g., Garner & Gillingham, 1996; Lehtinen, 1997). Schools can not avoid the breakthrough of the internet and other information technology. Moll & Greenberg (1990) described a network pattern in a primary school where learning was spread out to different networks, including the students' own networks, to visits by parents and other adults to the classroom, and to the teachers' own networks. This kind of networking emphasized activities in which both students and teachers moved outside the classroom and the school.

In Finland, the founding of teacher teams in elementary schools is only now taking place, and an interesting question has arisen as to what this

kind of new organization of collaboration will consist of. So far, there has not yet been any study of how teams at Finnish elementary schools will function. There is a need to study the functioning of teacher teams to get conceptual, theoretical and concrete tools to build teams at schools. Thus, the aim of this study is to examine those preconditions and obstacles which the school will meet in transition towards teams and networks.

Why should team- and network-based working of teachers be more successful than doing it alone? An evaluation of teamwork is dependent on the empirical knowledge and theoretical understanding of the forces at play. Cultural historical activity theory (CHAT) and developmental work research (DWR) used in this research offer a framework for such analyses. As an educational research paradigm, developmental work research studies learning and development, as well as educational institutions as workplaces (Engeström, 1996b).

RESEARCH PROBLEMS

In this study, I examine and analyze the planning processes in teachers' collaborative curriculum-making. Two teacher teams in an elementary school are the object of my research. The teacher teams were founded in order to create collaborative curriculum units. The concepts of the planning of curriculum units in the studied teams differed from one another due to the fact that the organization of the teachers' collaboration changed completely in the school. The study is longitudinal, as I collected data from the teams over two successive school years. I will compare these two Finnish teacher teams to an American teacher team in order to build a broader perspective for the activity of the Finnish teams. This study is not an overall cultural comparative study. Only in Chapter (6) I will compare the Finnish and the American teacher teams. I will contrast the characteristics of the discourse processes of the Finnish teacher team with the discourse processes of the American teacher team. Concerning the American team, there is already written a dissertation entitled "New Work in Old Institutions: Collaborative Curriculum Work of a Teacher Team" by Claire Buchwald (1995).

Teachers have traditionally worked as individual planners and executors of their lessons. The main question motivating this study is *in*

what preconditions will the teamwork of teachers in an elementary school *break* these traditional work patterns? What are the emerging characteristics of the teacher teams? The present study is a multi-faceted attempt to reveal and conceptualize the developmental dynamics of teacher teams. I approach the work activity of the studied teacher teams from several different angles at one time.

The research problem of this study came to have its roots in four questions:

(1) What are the differences and similarities of the planning processes of the curriculum units within the Finnish and the American teacher teams, and between the countries?

The analysis aims at revealing differences and similarities of planning processes in curriculum-making in different teams from two different cultures. I will compare the planning processes by focusing on the ways the teachers talked in the two teams.

(2) How did the contents of planning the collective curriculum units in the Finnish teacher teams' discourse change as the organization of teachers' collaboration changed?

One might expect that the historically evolved discourse patterns of a profession show a great deal of inertia and independence of the specific organizational arrangements of teacher collaboration. Alternatively, one could argue that talk is the most fluid instrument of collaboration and thus particularly sensitive to change in organization. One may question the very notion of straightforward causation here. Talk is not only a consequence or reflection of the situation. People also discursively construct their situations; they interpret and instantiate their organizational arrangements through talk.

(3) How to conceptualize and identify the collaborative learning of the teacher teams?

The analysis focuses on the problem of how collaborative learning in team discourse can be analyzed as the teams constantly re-formulate and construct their curriculum.

(4) Under what preconditions will the teams make network contacts?

The analysis focuses on the external perspectives of the teams and on the question of how teachers' work - including the planning and implementation of curriculum units - can be described and analyzed as a network. I will examine the teacher teams as network builders in development.

In Chapters 6-9, the more precise research questions are presented at the beginning of each chapter.

STRUCTURE OF THE STUDY

This study is divided into eleven chapters. In Chapter 2, the study is positioned in the field of the study on school restructuring in general, teachers' collaboration, and the making of local curricula. In Chapter 3, the theoretical starting points from the perspective of cultural historical activity theory and developmental work research are presented.

In Chapter 4, I will introduce the organizational setting of the teams, and the data. In Chapter 5, the methods of the study are presented (on a more precise level, the method of each analysis is presented at the beginning of each chapter of the findings).

Chapters 6 - 9 include the findings. These are presented from four different angles to answer the research problems. In Chapter 6, I will examine the above presented research problem (1). In this chapter, I will use the concept of planning trajectory. The findings are presented in the light of the differences and similarities of the features of talk and planning trajectories during the planning processes in curriculum-making in two cultures. The findings of the Finnish teams are contrasted with the planning trajectories of the American team.

Chapter 7 examines research problem (2). In this chapter, I will use the concept of social language to present the findings in the light of the changes in the teacher teams' discourse as the organization of teachers' collaboration changed within the school.

Chapter 8 examines research problem (3). I will use the concept of turning point to present the findings in the light of how construction of the curriculum units in the teams can be identified as collaborative

learning efforts. Finally, Chapter 9 handles research problem (4). I will define my own concept of a network contact, including the idea of outward-oriented and object-oriented contacts. Teachers' work, including the planning and implementation of curriculum units, is presented and analyzed as a network.

Chapters 10 and 11 contain the conclusions. In Chapter 10, the findings are summarized, interpreted, concluded and discussed. Finally, Chapter 11 presents the epilogue in the light of how the teamwork of the teachers has been developed in the school after the study period of two years.

2. POSITIONING THE STUDY

In this chapter, based on literature, I will examine the cultural historical change of schools. There are many studies and a great deal of literature about the change initiatives of schools. From the viewpoint of my study, three themes in this literature are central. The first theme revolves around issues of school restructuring, the second around issues of local curriculum-making, and the third around issues of teachers' collaboration.

STUDIES ON SCHOOL RESTRUCTURING

It has been claimed that educational reforms fail in schools. Researchers have described teachers' work as emphasizing the autonomy of the teacher, control of students, and lesson- and textbook-centered teaching (e.g., Lortie, 1975; Lieberman & Miller, 1984; Nias, 1989; Hargreaves, 1993).

The dominant form of school learning and performance has been individual (Resnick, 1987). Although group activities of various kinds occur in school, students ultimately have been judged on what they can do by themselves. In contrast, much activity outside school is socially shared. Work, personal life, and recreation take place within social systems.

Sarason (1990) shows in his study how educational reforms time after time have confronted social, institutional, and organizational obstacles. Despite several progressive movements, schools have been seen as places where both teachers and students work individually. Sarason (1990) claims that reformers have overlooked fundamental aspects of schools when they make their plans, namely power relations in the school, and that they ignore the importance of making schools satisfying places of learning for teachers and students alike.

Numerous attempts at school reform in Finland seem to have produced relatively few lasting effects as well (Miettinen, 1990; Sahlberg, 1997). School improvement efforts often has created controversies and conflicts making success difficult if not impossible to achieve. To understand the persistence of school learning, the power mechanism

used by school authorities must be analyzed. Curriculum theories and procedures have been important general instruments in unifying and controlling the content of teaching (see e.g., Kliebard, 1986). During the late 1960's and early 1970's, rationalization-oriented "teacher effectiveness" research became prominent (Prawat, 1992). In Finland, the psychological basis for the tayloristic curriculum was supplied by behaviorism (Miettinen, 1998a). Curricula became centrally prepared and the schools were supposed to implement them, which meant that teachers were supposed to cover the lists of content titles and objectives of the official curriculum documents. Also, textbooks were checked by the authorities and tied to the content lists of the official curriculum (Apple, 1986).

The idea of restructuring is commonly referred to in education. In America, the term "restructuring" emerged in the 1983 US government report, "A Nation at Risk". According to the report, what was needed was no less than the creation of new school structures. This report gave impetus to the great wave of school reform efforts in the 1980's that is continuing in the 1990's. Restructuring emerged from the interrelated fields of educational technology, instructional design, and systems theory (Goodman, 1995). The movement emphasized efficiency and productivity, individualism, and expertism, and therefore it rather reinforced existing school practices and values instead of substantively transforming teaching and learning in classrooms.

Restructuring movements have been addressed primarily to the restructuring of the educational system. Much current school rhetoric claims the importance of expanding the teacher's role to include curriculum development, participatory management of their schools, mentorship of less experienced teachers and membership in collaborative groups.

Michael Fullan (1995) describes in his book that learning needs to take place on various levels, from the individual to the faculty, to the school system and the community. Change in school presumes learning in various levels. According to Graham (1992), restructuring schools requires strategic alliances and networks among schools, families, government agencies, universities, and businesses.

Educational reform networks are becoming increasingly important as alternative methods by which teacher and school can institute reform. In

their study, Lieberman & Grolnick (1996) found that regardless of differences in the reform networks, the sixteen they studied appear to have had formats more collaborative than individualistic; leadership more facilitative than directive; thinking that encouraged more diverse perspectives; values that were both context-specific and generalized; and structures that were more movement-like than organization-like.

Recent research has shown that parents and other community members have often been unable to exert a meaningful influence on school decision making even when they were formally involved in decision-making processes (Hughes, 1994; Hendry, 1994). There is an opportunity for teachers to collaborate and network with the parents and families they serve. The hallmark of collaboration at this level is that parents have a "voice" in decisions.

Only a few researchers have paid close attention to shared decision making of teacher teams in restructuring the school (Parish, 1993). More attention has been paid to the collaboration of teachers and administrative staff (e.g., Barth, 1990). As Parish (1993) put it, the gap between teachers' current relationships to curriculum and the active relationship described by reformers is wide.

STUDIES ON LOCAL CURRICULUM-MAKING

Traditionally, teachers have been encouraged to rely on textbooks as the major resource for curriculum planning and work with students. As a result, curriculum decision-making has taken place outside the local context of the classroom and outside the control of teachers. According to Goodson (1988), one of the problems in studying curriculum is that it is a multifaceted concept, constructed, negotiated and renegotiated at a variety of levels and in a variety of arenas.

In Finland, the primary school curriculum has evolved within two separate traditions: the subject-centered and the student-centered (Malinen & Kansanen, 1987). The subject-centered tradition has been shaped by the Herbartian notion of a systematic didactic (Lehrplan). The student-centered tradition stems from Dewey (Curriculum). Moreover, the split between the two traditions has grown wider; teaching belongs to the field of pedagogy, while learning is studied under psychology.

Curriculum decision-making has traditionally taken place outside the local context of the classroom and the control of teachers. Nowadays, curriculum improvement in terms of a school-based curriculum is one of the main educational issues under discussion in Finland. In the 1990's several studies have been published in Finland on schools making their own curriculum plans as a collaboration of teachers and principals (Atjonen, 1993; Kosunen, 1994; Syrjäläinen, 1994; Jauhiainen, 1995). The researchers stress the change of traditional school culture as a precondition for the successful making of local curricula. Jauhiainen (1995) states that the collaboration and networking of teachers will increase when teachers are making local curricula.

Also in other countries, numerous studies have been published in this decade concerning school reconstructing initiatives and curriculum development. Studies by Connelly & Clandinin (1988) and Parish (1993) attest to interest in promoting creation by the teachers themselves of the curriculum they use. Colleagues can be a good resource for teachers who want to create plans of study and activity for their students. Like textbooks, colleagues are sources of ideas for themes, activities, and available resources. Colleagues can share relevant teaching experiences and work together in an interactive and dynamic way. However, only few researchers have paid sufficient attention to connect local curriculum-making and teacher teams (as an exception, see Buchwald, 1995; Engeström., 1994).

STUDIES ON TEACHERS' COLLABORATION

The idea of team teaching in schools came to Europe from the United States in the 1960's (e.g., Beggs, 1964). In the 1970's the model of team teaching l was also in use in Finland. However, the model did not focus on the work of teachers but rather enriched the learning experiences and instruction of students.

Teachers planning together with students was an object of practical implementation in the Finnish school system in the 1970's and 1980's (Lehtinen, 1984). This effort was called "joint planning of teaching". The approach aimed at applying ideas of progressive education to the Finnish school system. These ideas gave birth to educational

experiments which have been carried out in different parts of the world and are based on concepts of the progressive tradition such as the importance of active participation by students (Lehtinen, 1984). However, this effort largely evaporated toward the end of the 1980's. Nowadays, there is a movement to enhance collaborative student learning in school classrooms (e.g., Johnson & Johnson, 1989).

According to Hargreaves (1994), teamwork is seen by many teachers as non-productive and a waste of time that could be better spent with students or doing more effective individual planning. It is only quite recently that the notion of teams as an organizing principle for the work of teachers has reappeared (Maeroff, 1993). In Finland there have not yet been many teacher teams in elementary schools. It was only in 1994 that the making of the local curriculum became a task of each school. This planning has been done by the teachers and principals, and it increasingly calls for the cooperation of teachers and the formation of teacher teams. This interest in teacher and staff teams is closely connected with attempts at removing hierarchical bureaucratic structures of administration and involving teachers in collaborative management of their schools (Shedd & Bacharach, 1991).

Little et al. (1993) have criticized the way teachers define collaboration. She points out the tension between teachers' autonomy and individuality on the one hand and collective endeavors on the other.

Hargreaves (1994) assigns teacher cultures to the categories of individualism, collaboration, contrived collegiality, and balkanization. He distinguishes between contrived collegiality and collaboration. Contrived collegiality is administratively regulated, while collaborative cultures are spontaneous, development oriented, and pervasive across time and space.

Teachers search for information outside the school for instance through the internet and other kinds of information technology, and through other kinds of network contacts as well (e.g., Garner & Gillingham, 1996; Lehtinen, 1997). However, in the elementary school setting , the network building of teachers is in its beginning stages, and there has not yet been much research on the topic (as an exception, see e.g., Moll & Greenberg, 1990; Lieberman & Grolnick, 1996; Pennell & Firestone, 1996). Moll & Greenberg (1990) have made attempts to build collaboration between teaching in the classroom and the life of students.

Collaboration has occurred either in bringing representative examples of students' life to educational institutions or in bringing students and teachers to working life.

However, the studies examined above neglect the research of discourse as a central tool of teacher teams. The central part of work by teams is performed by means of discourse, and it is therefore important to examine team discourses as well. Besides, the above presented network studies focused on networks of individual teachers, not on networks of teacher teams.

To conclude, my own study lies at the intersection of studies on teachers' collaboration, local curriculum-making, and school restructuring. Its purpose is to examine the preconditions which help teacher team members to break their traditional work patterns as individual planners and executors of lessons. As the above summary of studies on teachers and schools showed, only a few researchers have paid attention to teachers' collaboration in curriculum planning. None of them have paid attention to discourse within a team as a central tool for planning. My study will focus on the centrality of the planning discourse within a teacher team's curriculum-making. Teachers' practice is primarily mediated activity, thus it cannot be separated of its context (see also Gudmundsdóttir, 1999) I am studying teacher teams' local planning of curricula which takes places within networks of teacher teams. Particularly, I am interested in the nature of collaborative learning within teams and use of network contacts in curriculum-making.

3. THEORETICAL FRAMEWORK OF THE STUDY: CULTURAL HISTORICAL ACTIVITY THEORY AND DEVELOPMENTAL WORK RESEARCH

The underlying ideas of cultural historical activity theory were initially formulated in 1920's and 1930's in Russia in the search for a solution to the problems of traditional psychology, which was seen as unable to describe the relationships between individual and society, and the historical development of psychological processes as well (Leont'ev, 1977).

In activity theory, the activity is defined with the help of the concept of object. The object of activity is twofold in that the object is both something given and something projected or anticipated (Leont'ev, 1977). According to Leont'ev, the object determines the horizon of possible goals and actions that functions as the motive force driving the activity forward. The subject constructs the object, and "singles out those properties that prove to be essential for developing social practice" (Lektorsky, 1984, p. 137).

Goals or objectives can be understood in relation to the object and motive of collective activity. To understand the relation between the individual goal and motive of collective activity, Leont´ev´s (1981) example of the hunting activity of a tribal community is helpful. In hunting the mutual efforts of members of the tribe are motivated by the game as an object to get food and clothing. To catch the game the tribe has to give different tasks to its members: for example some dislodge the game, others kill it. The goal of dislodging game is actually contrary to the motive of the activity as a whole. The beater frightens animals away; he does not try to catch and kill them. To make this action seem reasonable, an individual must be able to see it in connection with the motive and meaning of the activity as a whole.

As shown in the example above, the objects and motives of activity are collective. In the planning of a curriculum unit by a teacher team, there can also be identified a broader vision consisting of the teaching of teachers and the learning of students. In their complicated activity, in which there is a division of labor, the members of teacher teams mould not only their own plans and goals but also collectively this broader vision of activity. In an activity, the object is constructed both mentally and physically. This means that the object of activity is not fixed and

clearly defined but constantly evolving, and it is possible to trace the history of a particular activity, and the evolution of its object.

Activity theory and developmental work research focus on locally and temporally concrete activity systems - that is, work processes and organizations. A central premise of the theory from a developmental work research viewpoint is that organization members themselves represent a central force for genuine organizational development.

Historically, the work activity of school teachers is called teaching. In this study, however, teacher teams were founded in order to plan curriculum units collaboratively. Thus, here the studied activity of the teachers is largely planning activity of curriculum units. One could say that the work of teachers has been expanded to include planning of collective curriculum units. I am also studying the execution of the planned curriculum units. However, I am not studying the learning activity of the students since this would be a study of its own.

Teams can be understood as intermediate activity systems between the level of the entire school and the level of an individual teacher. In developmental work research, the activity system of an individual or group is studied and represented in its wider activity context and against its historical background. The analysis of the activity system as a whole is crucial, because it directs the focus and analysis to the whole organizational context. For such an analysis one needs a conceptual model of an activity system (Figure 3.1.).

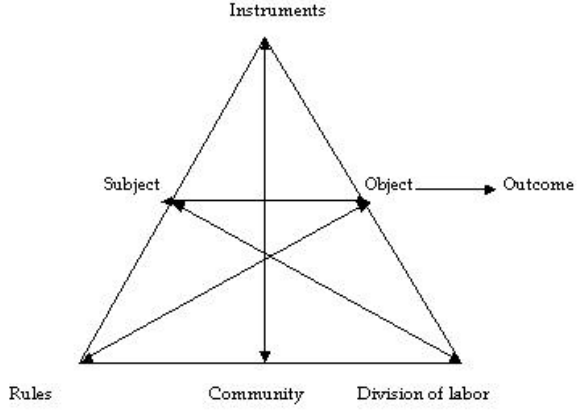


Figure 3.1. Conceptual model of an activity system (Engeström, 1987).

The model reveals multiple mediations in activity (Engeström 1990, p. 79). The *subject* refers to the individual or group whose point of view is adopted in the analysis. In this research, the subject is the teacher team whose point of view is adopted in the analysis. The *object* in the activity system refers to the "raw material" or "problem area" to which the activity is directed. The object of the activity is oriented towards a particular goal and is transformed to produce *outcomes* with the help of mediating *instruments.* These artifacts are tools, signs, and various kinds of representations that occur within the organization. The object of the teacher teams of this study is twofold: the students on the one hand and the local curriculum on the other. The outcome could be the successful implementation of the curriculum. As their instruments, the team members could use, for example, collaborative planning patterns of curriculum.

The model of an activity system can help to describe the relation between individual and community in workplace activity. Any one teacher or group of teachers can be observed as subject. Community signifies all the participants of an activity system, who share the same object. Division of labor refers to the distribution of tasks, authority, and benefits among these participants. Rules refer to the explicit or implicit regulations that constrain actions, written or unwritten rules. I will return to the definition of the activity systems of the studied teams more tentatively in Chapter 6 and more precisely in Chapter 10.

An activity system contains a variety of different viewpoints or "'voices", as well as layers of historically accumulated artifacts, rules, and patterns of division of labor. Engeström (1996a) stresses that this multi-voiced nature of activity systems is both a resource for collective achievement and a source of conflict.

In cultural historical activity theory, the concept of contradiction is of crucial importance. For Il'enkov (1977), systems in the world are internally contradictory. According to him, the object can be by itself internally contradictory. To develop means to resolve those real contradictions in the world, both intellectually and practically. According to Il'enkov (1982, p. 83-84), any improvement of labor before becoming accepted first emerges as a certain deviation from previously accepted norms.

Engeström (1987) states that a conceptual model of the activity system is particularly useful when one wants to make sense of systemic factors behind seemingly individual and accidental disturbances occurring in the daily practice of workplaces. Inner contradictions can be identified as tensions between two or more components of the system. When analyzing and trying to understand these inner contradictions, it is necessary to interpret them against a historical analysis of the evolution of the activity system. As a new element enters into the activity system from outside, a contradiction appears between the elements. For example, in teachers' work, the contradiction may appear when a new object, for example the planning of thematic unit , emerges in a teacher's daily practice. Teachers need to expand their collaboration but there are as yet no proper collective instruments to change planning and teaching patterns. Conflicts emerge between the thematic unit as an object and the traditional individual instruments of teaching.

In team literature (see e.g., Katzenbach & Smith, 1993), there has been a lack of analyzing the development of teams in terms of teams' concrete inner contradictions. However, the significance of contradictions as sources of evolution has recently been noted in some organizational literature (Putnam, 1994; Quinn & Cameron, 1988; Donnellon, 1996). Putnam (1994) has demonstrated the creativity of conflict in her study of collective bargaining between teachers and managers, including conflict aroused from differing positions and from engaging in interaction outside the normal bounds of teachers' and managers' activity.

The concept of paradox is closely related to the notion of contradiction. The analysis of paradoxes captures interesting dynamics of changes and development of work. However, the notion of object; and thus the specific content of collaboration and problem solving, remains outside of analysis. In activity theory, the outlining of contradictions of an activity system is based on a historical analysis of object-oriented activity. In this study, teachers' work is examined as having historically changing objects. Paradoxes, disturbances, or dilemmas in the teacher teams' discourse are understood here as external manifestations of certain contradiction.

The notion of the developmental cycle (Engeström, 1987, p. 189) helps to localize the phase in the development of the work of the team. The cycle is a spiral that leads to a qualitative change of the activity system.

The first phase of a developmental cycle is the “need state”. Characteristic of this phase is vague discontentment that is often directed towards people or groups of people instead of towards the structural features of the activity system. The second phase is called “double bind” (see Bateson, 1972). It means a phase when a sharpening contradiction has formed between certain factors of the activity system. The discontentment of the members of a workplace is directed to more clearly defined goals. The contradiction is experienced as intolerable. Solution of double bind requires analysis, gaining conceptual mastery of the contradiction. The third phase, “outlining new object and motive and forming a new model of activity”, is where members of a workplace sketch and plan a new solution to present contradictions. As an example of this phase the formation of teams may be mentioned. The formation of teams includes developing new strategic instruments and forms of collaboration and division of labor. The fourth phase, “the application and generalization of a new model of activity”, means that this new model is applied in everyday work. This often occurs the testing of strategic partial solutions. Finally, the fifth phase, “the consolidation and assessment of a new line of activity”, means transition to a state, where new practices are followed systematically. With the help of the developmental cycle model, I will return in Chapter 10, to the present contradiction of the studied teams, and to the contradictions which the teams were created to resolve.

Change and learning in work and organization requires construction of a new object and new motives. From the viewpoint of activity theory, collaborative learning in the team setting can be analyzed as object formation. Engeström (1987) has introduced the notion of expansive learning as expansion of object, which means that a team learns something that does not yet exists, the starting point of learning. According to Engeström (1987), expansive learning means above all the expansion of the object and motive of activity. This means that questions such as what is the aim of an activity, what is produced and why, are formulated and reformulated, leading often to the formation of new collaborative relations of workplace members (Engeström et al., 1995).

However, not all collaborative learning within an organization is expansive, since collaborative learning processes contain contradictory and multivoiced elements (Engeström, 1987). For instance, there can exist a qualitatively narrowing cycle leading to a reduction of activity

as well. Careful analysis and comparison of collaborative learning processes of both teams is an empirical and theoretical task of the present study. Engeström (1987) stresses that learning is a long-term process of internalization and externalization, appropriation of available cultural resources and design of a novel form of practice. In each chapter, in which findings are presented, I will return to the issue of how the teachers constructed their objects as learning in a more precise way. Chapter 8 especially is focused on the question of how the teachers constructed their objects in a planning activity.

The cycle of expansive learning may also be called a “zone of proximal development” of activity (Engeström, 1987). When analyzing the learning process of a child , Vygotsky (1978, p. 86) defined the concept of zone of proximal as its being "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers."

On the level of a whole collective activity system the zone of proximal development means the distance between a prevailing line of activity which is experienced as dissatisfying and a historically possible new line of activity bringing resolution to the contradictions (Engeström, 1987). I will return to the zone of proximal development of the studied teams in Chapter 10.

4. SETTINGS AND DATA

The area in which the school is situated has an interesting reform-pedagogical history. An experimental school was founded in 1913 by the prominent pedagogical reformer Mikael Soininen. According to Alisa Soininen (1949), the school experimented with various teaching methods, including students working in groups and joint planning of teaching. The students also made their own work books. The elementary school was founded in the 1940s, and until the 1950s the two schools functioned in the area as the following excerpt of a retired teacher, who had worked in the school since its founding, shows:

Retired teacher: *There were two elementary schools there . Our school started to function in the 1940s and it was placed in a one- family house, too. It was situated on the property of the Pukinmäki 's Manor, and was called Manor's School. The other one was an experimental school started by Mikael Soininen in 1913, and it functioned until the 1950s. It was called an experimental school.* (12/9/1996)

Nowadays, the school is large, with approximately 650 students. There are classrooms in five different buildings.

The study will analyze the evolution of two teacher teams in a specific context of change in the school, namely a change in the organization of teacher collaboration. It is noteworthy that the evolution of the teams was discontinuous, that in 1994 the Finnish school under study was restructured into new teams on the initiative of the principal. There was a certain continuity in the two teams studied owing to the fact that three teachers from the team of 1993 participated in the team studied in 1994. Table 4.1. below presents the different team concepts and changes in teamwork in both years.

	1993	**1994**
Origin of the team	Permanent team (Founded on the teachers' own initiative)	Temporary team (The school was organized into three teams by the administration. The teams worked together over a period of six weeks.)
Number of teachers (gender)	5 (2 men, 3 women)	8 (2 men, 6 women)
Constitution of team	Plan the team model and teach together theme-based unit the "Local Community"	Plan and implement separate elective courses

Table 4.1. Characteristics of the teacher teams and basic changes in organizing teamwork

In 1993, the idea of founding a team was brought up by the teachers themselves. The principal supported the idea of teamwork. The team was formed by five members, two men: Riku and Pekka, and three women: Anne, Liisa, and Leila (the names of the teachers have been changed). All the teachers were quite young (30-42 years old) and each had quite o lot of teaching experience (from 7 years to 17 years). The team was relatively autonomous from the rest of school. All five teachers worked on the third floor of the main school building. The layout of the classrooms of the team members is depicted in Figure 4.1.

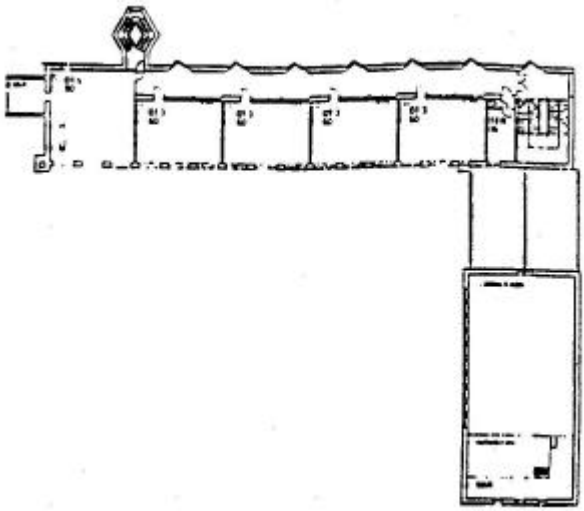


Figure 4.1. The physical layout of the classrooms of the team members on the third floor of the school

The team began to discuss, from the very beginning of the planning process, the principles of their pedagogy. Three teachers stressed in the interviews that the team was founded especially in order to ease the work pressure of the teachers by reorganizing their division of labor. The following interview excerpt describes the pressure to found the team.

Anne: *Actually it all started when it seemed that the numbers of students here in the third grade classes of which we have three now at our school, these amounts would be a bit uneven, sort of. That aspect would be there to make things easier, and hopefully I'll then be able to help others as much as I can.* (8/17/1993)

The teachers had developed the idea of a team model from three starting points. First, Anne, Riku and Liisa had made study trips to one neighboring elementary school which was carrying out the "project method." The project method in that school meant that during the morning period of each day of the week the students did some projects in collaborative groups. The teachers were unwilling to emulate the project-method model, but they were open to consider any good ideas

they might encounter. The following interview excerpt describes the productiveness of this study trip.

Liisa: *We visited another school to acquaint ourselves with their teaching method. They worked with projects in the mornings. But it did not seem to us as good as it had sounded, namely, that the project work would take place everyday. It did give us a certain idea, an impression of boldness to break away from the ordinary rhythm of the school, as it were. We started to think about how we could do it and then, pretty soon, we discovered that we could run once or twice a week a more intense teaching period with a mixed body of students.* (8/19/1993)

Second, the so-called "theme days," common to the whole school and held a couple of times a year served as a model for developing the idea of a team model . During these theme days, all the students were divided into different theme groups. The students had the possibility to choose their theme group according to their interest. However, the teachers felt those theme days of the whole school to be stressing. The following interview excerpt describes the organization of the theme days of the school.

Anne: *We have done in our school certain kinds of collaborative projects, for example, we have had "action days", taking three or four days in which the children took part in various activities and themes and the teachers teach them in specific locations. But the whole thing was very stressing.* (8/17/ 1993)

Third, during the autumn of 1993, the team shaped its model in direct conflict with another team of the school. The aim of the other team was also to plan and teach curriculum units together. In a joint meeting, the other team wanted to present their model to the team. Two of the five teachers in the other team had collaborated closely over several years. They tried to make the team which I studied accept their model of dividing students into small groups. The team studied here rejected their model.

In the discussion, the division of students into groups became the trigger issue. The other team's model was based on elective courses given to selected students during each of the six periods of the school year. These elective courses were taught in small groups of ten students. Together with their parents, students had to select one of two alternative

courses offered to them. Anne questioned the rationale of the other team's model. According to her argument, this offered only compulsory alternatives, not a genuine choice.

Anne: *"But what is the ideology here, since the basic idea would be to increase the child's right to choose according to his or her own interests and to proceed in the direction of his or her own choice? And now, however, it's like "you can choose this or you can choose that, but this is what you'll end up choosing."* (8/19/1993)

The joint meeting sharpened the differences between the views of the model held by the two teams. After this meeting the team settled for a model of their own, based on groups of 30 students, with each group having a different theme within a broader thematic unit. Students with their parents could choose between the different themes. The team began to call their model "theme-working" to distinguish it from the elective courses of the other team.

After settling the model, the team planned and implemented the shared thematic unit: "Local Community." The broader theme "Local Community" was divided into five different subtheme groups, namely the history group, the art group, the botany group, the newspaper editing group, and the work pedagogy group. The team implemented the Local Community theme once a week three hours at a time over five weeks.

In 1994 the situation was totally different. An interesting question here is why and how the nature of a team was changed. In Finland the making of the local curriculum became a task of each school in 1994. The school studied here started to plan its curriculum in autumn 1993, and the planning process took the whole year. The planning was done by the teachers and principal together. I asked the principal what kinds of teams there were in the school at that time. He told me that all teachers were divided in teams according to grade levels. All teachers of these three levels could collaborate with each other to plan elective courses in six-week periods. The idea was that teachers who were responsible for grades 1-2 would form the first team, teachers responsible for grades 3-4 would form the second one, and teachers responsible for grades 5-6 would form the third. Principal also told that he had supported team building for the whole school. According to him

elective courses would enhance the collaboration of teachers as the following excerpt from his interview shows.

Principal: *It [the elective courses model] is school activity, quite normal school activity…, now we have, however, agreed that participating is voluntary... I quite consciously stood for this team system, because I think it as if, there are many reasons for it, it helps the teachers. In addition to these [elective courses], there are different combinations, there's this heart of last year's team [Riku, Anne, and Leila] in house A, these three teachers who moved there to be able to work together.* (8/25/1993)

As for the team structure of the school, in addition to the elective courses teams, in a separate building, physically near to each other, there functioned an "unofficial" team of Anne, Riku, and Leila. They all had been members of the 1993 team. Leila and Anne took part in the elective courses team but Riku did not.

Participation in the 1994 teams was voluntary. Every teacher could participate or stay away without informing anyone in advance, which meant that members of the team changed from period to period. The 1994 team was exceptional because, in this particular elective courses period, certain teachers who were responsible for grades 3-4 and other teachers responsible for grades 5-6 formed the team.

The studied elective courses team had eight members. Three teachers were the same as in the 1993 team, namely Pekka, Anne, and Leila. Two teachers of the team were members of team B of the previous year: Kaija and Saku, and three teachers were new: Mervi, Hanna, and Maija (the names of the teachers have been changed). The team members' classrooms were now situated in five different buildings.

The concept of the team was pedagogical-administrative in that the task of the team, to plan and implement elective courses, was given by the administration. The teachers did not create their model by themselves. However, the teachers had freedom to decide what kind of courses they would plan.

The team coordinated 11 different elective courses. The titles of the eleven courses were "clay craft," "making Christmas decorations," "making scale models," "oral expression", "making marionettes,"

"maintenance of theatre clothes," and " a friend course". Two assistant teachers were responsible for leading the oral expression groups, and the mother of one of the students led the "friend course" for elderly people in her workplace, which was a service center for the elderly.

Data

The planning process of the Local Community in the 1993 team consisted of twelve videotaped team meetings (approximately 0,5 hours each). The meetings took place within two months (8/14 –10/13/1993). I also collected historical and ethnographic material about the school and the founding of the team for understanding the work of these schools and teams. In addition, the teachers and the principal of the school were interviewed. Also the events in and around classroom were videotaped (8 hours of videotape). Here this kind of data collecting is called shadowing (e.g., Sachs, 1993). Copies were made of any planning documents the teachers shared or created together.

The planning process of the elective courses in the 1994 team consisted of four videotaped team meetings (approximately 1 hour each). The meetings took place within two months (10/26-12/22/1994) as in 1993. The teachers and the principal of the school were interviewed, events in and around the classroom were videotaped (16 hours of videotape) and copies were made of planning documents the teachers shared or created together.

All interviews of teachers, meetings, and shadowing of classroom practices has been audio and video recorded. I was present in the meetings and videotaped them, but I did not participate in the discourse. The translation into English was made by a certified translator.

5. METHODS OF THE STUDY

I have divided the findings of the study into four different analyses. Each analysis entity required different methods and conceptual tools. In this chapter, I will give an overview of the methods used. I will present the methods in a more specific way at the beginning of each chapter of the findings part.

In Chapter 6, the focus will be on contextual, situated examination and explanation of differences and similarities of the different planning processes within the Finnish and the American teacher teams and also between the two different cultures of Finland and the USA. This is the only chapter in which I will contrast the characteristics of the discourse processes of the Finnish teacher teams with the discourse processes of the American teacher team based on Buchwald's (1995) dissertation. Planning processes are compared focusing on the ways the teachers talk in the teams in two different cultures. Comparison is based mostly on systematic comparison of quantitative data of formal features of talk, but to some extent qualitative content of talk is also compared.

One might ask how it can be possible to compare such different teams. In the background of this question lies the traditional conception according to which results of an analysis are only comparable when most of the variables of the study remain the same (cf. Fox, 1969, p. 69). The problem of this traditional idea of comparability in the study of teams is that the very founding of teams typically puts the organization into motion. The task of teams is to function as change agents that destabilize the traditional functional organization and lead to continuous organizational renewal (cf. Gersick, 1989; Katzenbach & Smith, 1993). If one studies talk and evolution of teams, one can not expect that the organizational structure will remain stable.

The different planning processes and styles of talk are examined by analyzing (1) the turn taking patterns, (2) the use of moods in the talk, and (3) topics and concerns of discourse. The turn taking patterns are studied based on research of what conversation analysts (CA) have termed turns at talk. Its basis is on the structure of conversation, the turn-taking system, initially formulated by Sacks, Schegloff, & Jefferson (1974). The grammatical term "mood" expresses the speaker's way of reacting to the content of the message and also the way the speaker feels about the activity expressed by the verb (Palmer, 1986). I

classified the use of moods of the Finnish teams as, for example, Matihaldi (1979) has done before in her research. The classification of the American teams' use of moods was based on the work of Palmer (1986). The examination of topics of team discourse was based on Brown & Yule's (1983) notion of discourse topic.

Besides topics concerns are also analyzed based on Buchwald's (1995) work. She noticed that there were certain overriding issues or concerns to which the American teachers kept returning. In the analysis of the Finnish team's discourse, I noticed that one topic often contained several concerns expressing the participants' different perspectives on the topic (Holland & Reeves, 1994).

The interpretation of the different planning processes is performed with the help of the activity systems (Engeström, 1987) of the teams. The conceptual model of an activity system is used to illuminate the systemic and contextual character of the factors behind the differences in the planning processes.

In Chapter 7, the focus will be on the question of how the nature of the Finnish teacher teams' discourse changes as the organization of teachers' collaboration is changed within the school. Now, the theoretical and methodological framework is based on Bakhtin's (1982) concept of social languages. I have used Bakhtin's ideas of dialogicality and social languages as did Ritva Engeström (1995) in her empirical analysis of talk in medical doctors' consultation.

In this chapter, the analysis of data in order to find the social languages of the discourse comprises the exploration of theoretical and historical roots of the social languages. At the same time, the transcripts of every topic are examined. Through this bi-directional examination, the languages which are present in the two teacher teams are identified and named. The languages are further divided into their variations. The frequency of each variation of language within each topic of meeting, as well as in all of the meetings, is counted as well.

In Chapter 8, the focus is on conceptualizing and identifying collaborative learning within teams. The methodological challenge is the question of how collaborative learning in team discourse can be analyzed as teams' constantly re-formulate and construct their objects. Thus, the theoretical and methodological framework of the chapter is

based on Leont'ev's (1977) concept of object and Bakhtin's (1982) concept of voice. To examine collaborative learning by the object formation of teams, the concept of the turning point of object formation is introduced with its operational measures. As operational measures I identified disturbance clusters, with questioning, and with interaction of different voices (see Engeström et al., 1991). Also Virkkunen (1995) used the concept of "turn" in his study of the work of labor inspectors. By turn he means a kind of change in relation to the plan. During the turn, a new viewpoint is brought to the discussion or a certain activity is changed in practice. In my study, the examination of the turning points of object formation in the light of their operational dimensions makes possible the analysis of teams' constant re-formulation of their objects.

In Chapter 9, I present a particular way to analyze and describe the network contacts of the teacher teams. The focus is on the analysis of the teacher teams as network builders in development. The methodological question of the chapter is how teachers' work, including the planning and implementation of curriculum units, can be described and analyzed as a network. The quality of the network contacts of the teacher teams is understood to include two qualitative aspects. The first describes the object-orientation (Leont'ev, 1977; Engeström et al., 1991) of the teams' contacts. The second describes the scope and outward-orientation of the contacts. In the analysis, I will use multiple complementary types of data, namely the interviews of the teachers, the discourse data of the planning meetings of the teams, and the observation data during the implementation of the curriculum units. The nature of network contacts is analyzed both quantitatively and qualitatively through these three types of data. The following table summarizes the methods used in relation to the data and research questions used.

RESEARCH PROBLEMS	METHOD	DATA
1) What are the differences and similarities of the planning processes of the curriculum units within the Finnish and the American teacher teams, and between the countries? (Chapter 6)	*The turn taking patterns *The use of moods in the talk *The use of topics and concerns of discourse.	*Team meetings: *Finland:* 1993:12 meetings 1994: 4 meetings *USA:* 1992: 7 meetings 1994: 5 meetings *Interviews of principals and all team members both in Finland and in the USA * Ethnographical and historical data of the schools
2) How did the contents of planning the collective curriculum units in the Finnish teacher teams' discourse change as the organization of teachers' collaboration changed? (Chapter 7)	The analysis of social languages of the discourse: the exploration of theoretical and historical roots of the social languages and the examination of the transcripts of every topic.	Team meetings of both years
3) How to conceptualize and identify collaborative learning of the teacher teams? (Chapter 8)	Identification of the turning points of the object formation in the teacher teams with turning points' operational measures (disturbance clusters, with questioning, and with interaction of different voices)	Team meetings of both years
4) Under what preconditions will the teams make network contacts? (Chapter 9)	Analysis framework of the network contacts including object-orientation aspect and outward-orientation of the network contacts	*All team meetings of both years *All team members' and the principal's beginning and ending interviews of processes of both years *The observation data during the implementation of the curriculum units of both years

Table 5.1. Research problems of the study related to the methods and data used

From the activity theoretical viewpoint I will proceed from more general research questions to more specific research questions by using different methods and by using the same data corpus. In Chapter 6, I

will tentatively outline the activity systems of the two teams. As data I use team discourses and interviews of the teachers and the principals. In Chapter 7, I will proceed deeper into the investigation by analyzing the historical evolution of the teacher teams' discourse through the exploration of the use of social languages. I concentrate on team discourse data. In Chapter 8, I will proceed to a more specific question as well. I will identify the turning points of object formation of both teams and present a particular way to conceptualize and identify collaborative learning within teacher teams. As data, I use team discourses. Finally, in Chapter 9, I am exploring the external perspective of the teams, the teams as a network builder. I am developing my own framework to describe the network contacts of the teacher teams as object-oriented and outward-oriented contact categories. To illuminate the external perspective of the teams, I use multiple complementary types of data, namely discourse data, interview data and observation data. By combining the analyses of Chapters 6-9, it is possible to specify the activity systems of the studied teams and to specify under what preconditions the teamwork of the teachers in an elementary school will break the traditional work patterns.

6. COMPARATIVE ANALYSIS OF PLANNING TRAJECTORIES IN FINNISH AND AMERICAN TEACHER TEAMS

This chapter focuses on the planning discourse of teacher teams in elementary schools in two different cultures, in Finland and in the United States, connecting the discourse observed in the teams to the activity context in which the discourse takes place. This chapter analyzes and compares a total of four planning processes of both teams in teachers' collaborative curriculum-making. My analysis uses findings from, and expands upon, a previous study on the American team (Buchwald, 1995). In both countries, the teams were created on the initiative of the teachers themselves, but unlike in the Finnish case the organization of the team structure of the American teacher team remained the same.

The analysis aims at revealing differences and similarities of planning processes in curriculum-making in teams from two different cultures during two different years. I will compare the planning processes by focusing on the ways the teachers talked in the two teams. The different planning processes and styles of talk are examined by analyzing (1) the turn taking patterns, (2) the use of moods in the talk, and (3) topics and concerns of discourse. In particular, the analysis of the topics and concerns will enable me to depict and compare the two planning trajectories in their entirety. (I have also examined the structural features of teachers' discourse in other papers, see Kärkkäinen, 1996a, 1996b, 1996c, 1997a, and 1997b.)

This chapter explores how the differences and similarities of the Finnish and American teams' planning discourses can be explained with the help of the concept of an activity system. How should one understand the nature of development in the teams? What is progress or regress in the teams? How can one evaluate development of the teams? When interpreting the results, I will discuss possible explanations for the differences between the teams from the two countries. The conceptual model of an activity system will be used to illuminate the systemic and contextual character of the factors behind the differences in the planning processes.

Here I use team discourse as core data for the analysis. In organizational research, the study of discourse has become increasingly

important and fruitful (cf. Taylor, 1995; Donnellon, 1996). Donnellon (1996, p. 25) has stressed that discourse is the primary medium through which information is exchanged, decisions are made, and plans are formulated in teams. The way a team talks reveals where the team is coming from and where it is headed. Discourse is also a tool for changing a team's destination.

THE NOTION OF PLANNING TRAJECTORY

The notion of trajectory is geometrical in its origin. The dictionary describes trajectory as a pattern of development which seems to start by going up and end by coming down (Collins & Cobuild, 1987). Trajectory is a central concept in the interactionist theory of action of Anselm Strauss (Strauss, 1993; 1995). The concept of "illness trajectory" was formulated to explain the organizational and interactional aspects of work done for and around hospitalized patients during the course of their dying (Strauss & al., 1985). The trajectory concept was designed to capture, beside temporal features, also psychic decline, the interaction of staff with the patients, the interaction of staff members themselves on the wards and with personnel elsewhere in the hospital, as well as to analyze how hospital conditions affected all of this interaction. In his recent book, Strauss (1993, p. 53-54) specifies the notion of trajectory in two ways: it is the course of any experienced phenomenon as it evolves over time, and it comprises the actions and interactions contributing to its evolution.

The trajectories of the teacher teams were manifest on two different levels. First, there were the planning trajectories of the curriculum units in both teams. In 1993, the Finnish team planned and taught the curriculum unit Local Community and in 1994, the elective courses. In the American team, in 1992, the teachers planned and taught the curriculum unit "Harvest Festival," and in 1994, the curriculum unit "Gold Rush." The trajectories included the emergence of the idea of the unit, its planning and implementation processes, and the follow-up of the implementation.

Secondly, there is the trajectory or the life-span of the team itself. For the validity of the comparison, it is important that during the data collection of the first planning trajectories both teams were at the beginning of their life span as teams. Both curriculum units were

planned and taught during the first fall semester of the team's active existence, starting within two months of the beginning of the school year. During the second planning trajectories, the Finnish elective courses team was again at the beginning of its life span. The American team functioned a second year as a team.

Gersick (1988; 1989) has examined entire life spans of several naturally occurring task-force teams. She noticed that the teams did not accomplish their work by progressing through a universal series of stages and criticized the traditional stage models of group development (e.g., Mills, 1979). However, Gersick herself concluded that in all teams the temporal midpoint of the life span is of decisive importance for the end result - a rather universalistic claim in itself. Moreover, though Gersick herself criticized studies of groups for covering only short periods of interaction, usually minutes or hours, her own study included only task-force groups with limited life spans and fixed deadlines.

In the present analysis, I do not assume or aim at constructing any universal trajectories. To the contrary, the focus is on contextual, situated examination and explanation of differences and similarities.

COMPARISON OF RESEARCH SETTINGS AND DATA

The American school was located in a suburban middle class neighborhood in Southern California. The Finnish school was located in a suburban middle class neighborhood in Helsinki. The Finnish school was large, with approximately 650 students. The school was ethnically uniform, except for a few foreign refugees. The American school had approximately 450 students; roughly 80% of them were of Caucasian origin and 15% of Hispanic origin. The American teachers had established a co-operative educational venture called the Global Educational Program (GEP), which was a separate program within the school staffed by the five teachers appearing in this study. Parents applied to get their children into the GEP program.

The data was collected by videotaping meetings of the Finnish team during two months in 1993 and in 1994. Videotaped data on the American team was collected during two months in 1992 and in 1994. The two teacher teams had to a great extent similar characteristics at the

beginning of the study. Both teams planned and taught the local curriculum collaboratively, aiming at theme-based curriculum units in which students were at times expected to work in mixed-aged (or cross-aged) groups. Both teams were founded by the teachers' own initiatives. In the Finnish team all the teachers were quite young; in the American team the age and experience of the teachers varied more. The five teachers of the Finnish team were responsible for five classes covering the grades 3-6 and consisting of 150 students. The five American teachers were responsible for five classes covering all grade levels from K(indergarten) through 6 and consisting of 150 students. Table 6.1. below presents characteristics of the teacher teams and basic changes in the models of planning and structure of the teams in both years.

	Finland 1993	**Finland 1994**	**USA 1992**	**USA 1994**
Origin of the team	Permanent team, founded on the teachers' own initiative	Temporary team: the teams were collected over a period of six weeks, time and time again. The school was organized into three teams by the administration	Permanent team, founded on the teachers' own initiative	Permanent team - expanded permanently by one and temporarily by 4 members on the teachers own initiative
Const-itution of the team	Plan the team model and teach together theme-based unit	Plan and implement elective courses	Plan and teach together theme-based unit the based on "Cross-aging" and the Global Education model	Plan and teach together theme-based unit based on "Cross-aging" and the Global Education model
Phase of the life-span	The first year as a team	The first year as a group	The first year in this composition	The second year as a team
Num-ber of teach-ers	5 (2 men, 3 women)	8 (2 men, 6 women)	5 (women)	6 team members, 4 outsiders (2 men, 8 women)
Other teach-ing res-ources	3 teacher students, 1 special teacher	2 teacher students, 2 assistant teachers and 1 mother as group leaders	-	3 assistant teachers, about 20 parents

Table 6.1.Characteristics of the teacher teams and basic changes in the models of planning and the structure of teams in both years

The Finnish team planned and implemented the thematic unit Local Community during the first year of the study. In 1994, the whole Finnish school under study here was restructured into teams. However, these teams were not permanent because participation in the planning of elective courses was voluntary. In this sense, the new model could be described as a temporary task force (e.g., Hackman, 1990). During 1994, the elective courses were taught by eleven different groups. As an exception to the previous year, two assistant teachers were responsible for leading the oral expression groups, and the mother of one student led a voluntary course in her workplace, an old people's home. The teachers decided to conduct the elective courses as a "patchwork quilt" without any shared theme.

On the other hand, the idea of the American teacher team was basically the same during both years. While in 1992 the team was at the beginning of its life-span, by the spring of 1994 the team had a year and a half of experience with teamwork. The team was expanded by one member in 1994. The team members invited four teachers to join their team temporarily to plan a curriculum unit.

During the first year the American team planned and carried out the thematic unit "Harvest Festival." During this planning process the team faced many difficulties with other teachers.

The unit Harvest Festival was divided into five different themes. The model was quite similar to the Finnish theme-working model: each teacher and each classroom had a theme, and each classroom was divided into five sub-groups. Cross-aging, that is the mixing of students from all six grade levels in each group and sub-group, was a crucial concept in the American model.

In 1994, the "Gold Rush" theme, a topic of California history, was carried out by ten teachers. Six team members thought they might team up with the other fourth-grade teachers. Also about 20 parent volunteers and three assistant teachers participated in carrying out the Gold Rush theme. The Gold Rush activities were the same for all students.

In order to compare the characteristics of the teachers' planning discourse, the data was collected in similar ways in both teacher teams. While quantitative comparisons are made, the analysis is conducted by

trying to keep close to the data and presenting excerpts from it. The analysis is based on the meetings during which the teachers planned the curriculum units. The data for the Finnish and the American teams were collected in two successive years. In the Finnish team the first planning trajectory consisted of twelve videotaped team meetings, each averaging approximately 30 minutes in duration. The second planning trajectory consisted of four videotaped team meetings, averaging approximately 30 minutes in duration.

In the American team the first trajectory included seven videotaped meetings averaging approximately one hour in duration. The second planning trajectory consisted of five videotaped meeting averaging approximately an hour in duration. The first trajectory in the American team took 2 months and the second 1 month.

In addition, the teachers in both teams and the principal of the school were interviewed. Also the execution of the planned curriculum unit in and around the classrooms was videotaped in both teams. Both in Finland and in the United States copies were made of any planning documents the teachers shared or created together.

The transcripts of discourse in the planning meetings were used as core data for the present analysis. The structural analysis as quantified and presented in the tables was based on a sample of four meetings in 1992 and four meetings in 1994 in the United States and sample of three meetings in 1993 and all four meetings in 1994 in Finland.

In comparing the structural features in teachers' talk I first concentrated on patterns of turn taking. In transcribing and coding the turns I followed a slightly simplified form of the conversation-analytic notation developed by Gail Jefferson (see Potter & Wetherell, 1987, p. 188-189).

Secondly, I systematically compared the use of moods. Buchwald (1995) found that there were many turns involving words such as “would” and “'could” in the American discourse. She checked exactly how many such hypothetical verbs there were. In addition to moods, I also checked modal verbs, because they seemed to indicate many hypothetical turns in the Finnish data.

Thirdly, I analyzed the topics and concerns of the planning discourse. When tracking the topics the teachers discussed, Buchwald (1995) found that the teachers kept coming back to several areas of problem solving and discussion which were repeated across the different topics. These are called concerns.

COMPARISON OF THE PLANNING PROCESSES IN THE FINNISH AND AMERICAN TEAMS

The main phases of the planning processes in both teams are presented in Table 6.2. The table indicates the timing and main issues discussed in the Finnish and American teacher teams.

FINLAND 1993	**FINLAND 1994**	**USA 1992**	**USA 1994**
Planning meetings: 7 meetings Principles of teamwork and unit construction	Planning meetings: 3 meetings Organizing the elective courses and dividing students into the groups	Planning meetings: 5 meetings Principles of "cross-aging" and unit construction	Planning meeting: 4 meetings Dividing students into "cross-aged" groups and unit construction
Meetings during execution: 4 meetings Planning and logistics of the coming theme day	Meetings during execution: None	Meetings during execution: 1 meeting Specific details about the actual festival	Meetings during execution: 1 meeting Problems that had arisen during the teaching
Evaluation meetings: 1 meeting Evaluation of the unit	Evaluation meetings: 1 meeting Evaluation of the courses	Evaluation meetings: 1 meeting Evaluation of the festival	Evaluation meetings: None

Table 6.2. Main contents of the meetings in the Finnish and American teacher teams during both planning trajectories

In the Finnish team the unit Local Community was divided into five different thematic groups: the history group, the art group, the botany

group, the newspaper editing group, and the work pedagogy group. Each teacher was responsible for one group according to her or his interest. There were two teachers who were interested in the newspaper editing group. Teachers decided that they were all in charge of organizing the work pedagogy group. It was planned that the groups should work both at the school and in the surrounding community.

The Finnish team called their general model of planning the units "theme-working." It was based on groups of 30 students, each group having a different theme within a shared curriculum unit. Teachers subdivided the groups according to students' interests so that each smaller sub-group could consider a different aspect of the theme. For example , the history group was divided into small interview groups which interviewed such sources as a local historian, people at a service center for the elderly, and students' grandparents and parents. In the Finnish team the planning discussion was for the most part discussion about organizing the unit. The teachers did not determine the detailed contents of different themes together. As an outcome of the planning process, quite outward-oriented forms of activity were realized. Teaching was strongly oriented away from the classroom, toward exploring the close surroundings of the school.

It is noteworthy that the Finnish team discussed in its first four meetings both the basic principles of working as a team and the principles of theme-working before starting to plan the unit Local Community. The third meeting was arranged jointly with another teacher team in the same school. The other team wanted to present their own model for planning units; however, the team analyzed here rejected the other team' s model. After the joint meeting, the team studied here settled for a model of their own, named it theme-working, and began to plan the unit (for a separate analysis of this episode, see Engeström et. al, 1995).

The 1994 team did not discuss the idea of elective courses very much. In their first meeting the team members discussed a possible broader theme for the elective courses. However, they decided that they did not need any broader shared theme. Each teacher would implement different courses.

In the planning meetings, the team mostly discussed the organization of elective courses. They did not plan the courses in detail. The teachers

did not participate in all the meetings, only some of them were present at every meeting. In the evaluation meeting, each teacher reviewed briefly how the instruction had succeeded. The elective courses were classroom-centered.

In the American team the unit Harvest Festival was also divided into five different themes: rice, wheat, corn, hunting and gathering. The themes were divided among the teachers by lottery. The model was quite similar to the Finnish model: and each teacher and each classroom had a theme, each teacher became an expert in his/her own theme, and each classroom was divided into five sub-groups which had its own sub-activity within the theme. Cross-aging, the mixing of students from all six grade levels in each group and sub-group, was a crucial concept in the American model. Compared to the Finnish team, the American team discussed the detailed contents of each theme, and more unified assignments and sub-groups were realized as a result. On the other hand, teaching in the American team was not so strongly oriented away from the classroom as in the Finnish team. The American team spent more time than the Finnish team discussing difficulties they experienced with other teachers of their school.

The American team started to speak in a more focused way to speak about the unit Harvest Festival than did the Finnish theme about their Local Community theme. The general model of mixed age groups was repeatedly discussed and developed during the process. The model for the mixed age groups organization of the unit was finalized only in the fifth meeting, shortly before the classroom implementation of the unit was to begin. Interestingly enough, while in the Finnish team the model was formulated in response to an *external* confrontation with another team, in the American team the model was finalized in response to an *internal* confrontation between one of the teachers and the others.

In 1994, the unit Gold Rush referred to the California gold rush in the late 1800's. A long-standing fourth-grade tradition at Horizon school was a Gold Rush event in which students looked for mock gold pieces and sometimes did other activities. Teachers decided to team up with the non-GEP fourth grade teachers to create a unit for all fourth graders and GEP students in the school. Also about 20 parent volunteers participated in the implementation of the Gold Rush theme. The theme concerned about 250 students. Assistant teachers in the GEP also took part in the team meetings and the implementation of the theme.

The planning of the unit took eight hours of intense group work. During the meetings the following themes were decided upon: “China,” “East Coast people who came across the Isthmus,“ “Europeans who came around the horn,” “Australia,” “East Coast merchants who came by covered wagon,” and “Mexico.”

The team, together with parents and students, implemented the theme during two days. In the last meeting the teachers conferred about the problems that had arisen that day, the first day of Gold Rush activities. As the outcome of the planning process of the Gold Rush theme a very outward-oriented activity was realized. In this kind of activity the parents of students participated in the implementation of the theme, and compared to the Harvest Festival theme the teaching was more oriented away from the class.

During both planning processes the rhythm of the meetings differed in Finnish and American teams. During the first planning process the Finnish team had meetings which focused mostly on the principles of teamwork and unit construction, once a week, while during the second planning process the first three meetings were held before the implementation of elective courses. The meetings were held within one week, and they were mostly devoted to organizing the course. There were no meetings while their courses were being conducted. Both the unit Local Community and the elective courses were held once a week for 2-3 hours at a time.

During the first planning process the American team held six of its seven meetings, mostly devoted to the detailed contents of subthemes, before the unit Harvest Festival was implemented. The teachers implemented the theme over four days. During the second planning process the whole planning and execution process was shorter than that for Harvest Festival, lasting about two weeks. The meetings were devoted more to the planning, organizing, and logistics of the Gold Rush unit than was the case for the Harvest Festival theme. The team implemented the unit over two days.

COMPARATIVE ANALYSIS OF TURNS AT TALK

There is a great variety of research on what conversation analysts (CA) have termed "turns at talk". Its basis is the structure of conversation, the turn-taking system, initially formulated by Sacks, Schegloff & Jefferson (1974). According to the system, turns consist of syntactic units. Among the syntactic units there are points that allow for exchange. Primarily one party talks at a time and transitions with no gap or overlap are common (Sacks, Schegloff & Jefferson 1974, p. 708). Conversation analysts have traditionally studied mainly everyday or "ordinary" conversations. Their interest is in the social organization of turn-taking (Goodwin, 1981). Socially oriented researchers (e.g., Atkinson & Heritage, 1984) emphasize the interactive nature of dialogue and acknowledge the embeddedness of single turns in social interactions and social situations.

Many researchers have questioned the one-at-a-time character of turn-taking (e.g., Coates, 1994; Denny, 1985; Tannen, 1984). Tannen (1984) introduced the "high-involvement conversational style," also characterized by frequent overlap. Tannen studied natives of New York City with East-European Jewish background as well as numerous other groups around the world. She identified three kinds of overlap: cooperative sentence-building in which the overlap occurs as a speaker and an auditor try to complete the utterance together; requesting and giving verification in which one of the participants asks for verification during the ongoing talk; and choral repetition in which participants repeat what the current speaker is saying.

Tannen (1984) defined the high involvement style as follows: (1) faster rate of speech, (2) faster turn-taking, (3) avoiding interturn pauses, (4) cooperative overlap and (5) participatory listenership. The identification of the listed features was based on a conversation recorded at a Thanksgiving dinner at which Tannen was a guest. She connected the high involvement style to ethnic and geographic style differences. She has not analyzed the high involvement style in institutional settings (see Tannen, 1994).

There is a lot of research concerning interruptions in everyday conversations (e.g., Drummond, 1989) but less research concerning interruptions in institutional settings (e.g., Hutchby, 1992; Ferguson, 1977). Drummond (1989) stressed that the basic difficulty in research

on interruptions is that interruption is not in the first place a technical concept. In different situations interruption may make different contributions. Ferguson (1977) also stated that in institutional, therapeutic discourse the simultaneous speech may make both negative and positive contributions to the conversation. While interruptions often signal one's desire to control or dominate the conversation partner's behavior, some interruptions and overlaps may allow new speakers to comment upon topics.

It is often supposed that interruption and overlapping are linked with the establishment of topic control or gender dominance in discourse (Hilpert, Kramer & Clark, 1975; Kollock, Blumstein & Schwartz, 1985; Lakoff, 1990). For example Hilpert, Kramer and Clark (1975) found that men speak more frequently and longer. However, some researchers (James & Clarke, 1993; Hirschman, 1994) have questioned the claim that overlapping and interruption are linked with gender dominance, pointing out that they can function supportively and co-operatively as well.

In my analysis, turns at talk are classified in four groups, namely (1) turn with pause, (2) turn without pause, (3) simultaneous or overlapping turn and (4) interrupted turn. To gain a clear sense of the relative preponderance of different types of turns, I counted the turns as Buchwald (1995, p. 118-121) did in the case of American teacher team meetings. Before presenting the quantitative findings, I will concretize the four categories with the help of brief examples.

A full turn was coded in cases where the speaker broke off her or his own turn without any interruption from someone else. Here is an example from the Finnish data showing a full turn followed by a pause.

Riku: *At some point we've got to solve it [i.e. to decide on the timetable] , I mean we have to solve it as a team, I mean the way it - er, there are three alternatives.*

Liisa: *Yes but in my opinion there is no, well, in principle there's nothing to discuss, because it's, well, isn't this kind of thing everybody's own business, that is, if you decide to start with the old system.*

Simultaneous turns were coded as overlap. Below is an instance of overlapping speech.

Leila: *Well, yes, but from the point of view of the curriculum they're not your pupils.*
[
Liisa: *I've got some of your students, too.*

Interrupted turns were coded in cases when another person began speaking and the first speaker continued talking. Below there is an example of broken-off turns.

Anne: *Well, I don't actually know-*
Riku: *Well, yes, one should kind of-*
Anne: *how does it become concrete in our work then if that's what we'll do?*

Turns without pause or "latching" speech, as conversational analysts call it, was coded in cases when speech continued without an intermediate pause. The following example shows an instance of speech without pauses.

Anne: *Yes, I feel that in these kinds of group things, er, in a group like this - is it necessary to maintain the loose structure so that it could be changed?!=*
Liisa: *=Yes, quite, because this doesn't, I mean it doesn't radically differ from the old system.=*
Anne: *=No, it doesn't.*

Findings of the turn-taking patterns in the teams of both years in each country are shown below in Table 6.3. The table indicates the frequencies and percentages of each type of turn exchange in all of the meetings (appendix 1 indicates the frequency and percentages of each type of turn exchange within each of the meetings (M) as well as in all of the meetings).

EXCHANGE	FINLAND 1993		1994		USA 1992		1994	
	f	(%)	f	(%)	f	(%)	f	(%)
Turns followed by pause	209	(19)	1354	(58)	245	(40)	202	(48)
Turns without pause	614	(56)	520	(22)	116	(19)	66	(16)
Simultaneous turns	205	(19)	393	(17)	218	(35)	122	(29)
Interrupted turns	65	(6)	83	(3)	40	(6)	28	(7)
TOTAL	**1093**	**(100)**	**2350**	**(100)**	**619**	**(100)**	**418**	**(100)**

Table 6.3. Percentages of types of turn-taking in years 1993 and 1994 in Finland

In the Finnish team during the year 1993, 56% of the teachers' turns were without a perceptible pause, while during 1994 only 22% were without a perceptible pause. In 1993 19% were full turns followed by a pause, while in 1994 58% were full turns followed by pause. In other words, there was a decrease of latching speech and an increase of turns followed by a pause in the Finnish team.

What factors led to these marked changes in turn-taking? In 1994 there were many long pauses lasting several seconds in the Finnish team meetings. As stated previously, the concept of team totally changed in 1994, and it planned elective courses which had no common, shared theme. All eight teachers planned their courses by themselves. The previous year's team was permanent and spent a lot of time exchanging ideas to work as a team. They planned the Local Community theme, which was a shared broader theme and common to all five teachers. In other words, in 1993 the nature of planning talk was cooperative, focusing on shared targets, while in 1994 the nature of planning talk was coordinative, focusing on the distribution of students into different courses.

In 1992, in the American team, 35 % of the turns were simultaneous or overlapping. In other words, a tremendous degree of overlapping could be identified. The number of turns without pauses was averaged 19%, while 40 % of turns at talk were followed by a pause in the discourse. Interrupted speech accounted for approximately 6 per cent of all turns. It was as if the American team meetings in 1992 were more "polarized," in that both the turns that were followed by a pause and simultaneous (overlapping) turns were more predominant than in the

Finnish team. In the Finnish team, the predominant style was more "middle of the road," namely turns without pause.

In the American team, in 1994, 48% of statements were followed by a pause before the next speaker began talking. The table also shows that the proportion of simultaneous speech decreased. According to Buchwald (1995) the decrease in overlaps which she observed occurred because of increased complexity (10 participants in the meeting) and intensity of planning (time pressure). She found that while they planned with more people and less time, the teachers used a more disciplined pattern of discourse that involved fewer overlaps.

During the first years under study, in both countries, the teams often constructed topics together by each participating a turn at a time in an enthusiastic manner. According to Tannen's (1984) high involvement cooperative sentence-building the overlap occurs as a speaker and auditors try to complete a turn together. In the Finnish team in particular speech without pauses was also common in cooperative sentence-building. The following excerpt demonstrates the 1993 Finnish team's style of collaborative sentence building. In the excerpt the members explain their plans to the other team.

Anne: *That the common time, for so long, it was found surprisingly, or, I mean, this could be found at once, that it was very nice too, that it could be found for everyone.=*

Leila: *=For as many as five classes.=*

Anne: *=Yes. It could be found at once.*

[

Riku: *Though the starting point as if for background for you*

[the other team], too, two whole days had been reserved, because we were, because we were three at that time, yeah we had two whole days, we could've used the longer ones as well =

And here is a comparable example from a discussion in the 1992 American team.

Jill: *I was thinking yeah if there is like, cross-age groups like all the kids for who are doing the wheat are in one*

room like gathering. We'll just have, just go ahead and go on. I'm not thinking (exactly, that's all right)=

Jess: Well, you're just thinking why, why should we have the *kids, why shouldn't we just have all the wheat in one room? That's what you are saying?*

[

Jill: *(That's) because the expert is in that room, but-*

In 1993, at times the Finnish team's talk resembled the style which Tannen called "machine-gun questions without pauses," as demonstrated by the following excerpt .

Liisa: *Well and then, is the meaning here that in principle you as if have as if a class of your own, you work this thing out with your own class ?=*

Riku: *=Not necessarily.=*

Liisa: *=Or is it so that it is as if the beginning that it is as if according to the things?*

[

Anne: Not necessarily. Well, of course it sounds a bit, of *course it sounds a bit idealistic as well or so, but that the pupils in a certain way would have a possibility to choose what they want with the theme.*

In the Finnish team both male and female teachers interrupted each other quite equally. In 1993, Riku interrupted the other teachers 15 times (23%), Pekka 6 times (9 %), Anne 20 times (31%), Liisa 10 times (15%) and Leila 14 times (22%). Little support was found for the claim that interruption is linked with gender dominance in discourse. Moreover, both in the American and the Finnish team there were only 6 per cent interrupted turns although all the American teachers were female.

Hilpert, Kramer & Clark (1975) claimed that the length of the turns would correlate with gender. According to them men would typically speak more frequently and for longer. In the Finnish team it was actually the women who took longer turns, as Table 6.4. below indicates.

	Meeting 1		Meeting 3		Meeting 12	
	Turns	Words	Turns	Words	Turns	Words
Riku	43 (20%)	584 (21%)	94 (13%)	892 (9%)	53 (29%)	823 (28%)
Pekka	23 (12%)	214 (8%)	1 (0%)	7 (0%)	15 (8%)	53 (2%)
Anne	60 (28%)	1042 (36%)	195 (28%)	2847(29%)	43 (24%)	674 (23%)
Leila	40 (18%)	366 (13%)	- -	- -	28 (15%)	367 (13%)
Liisa	45 (22%)	628 (22%)	99 (14%)	1290 (13%)	43 (24%)	971 (34%)
Kaija		114 (16%)	1657 (17%)			
Saku		14 (2 %)	79 (1%)			
Minna		88 (13%)	1076 (11%)			
Marjatta		69 (10%)	1699 (18%)			
Jaakko		26 (4 %)	140 (2%)			
Total	211 (100)	2834 (100)	700 (100)	9687 (100)	182 (100)	2888 (100%)

Table 6.4. Turns and words per teacher and meeting in the 1993 Finnish team

Rather, the length of the turns seemed to correlate with how long the teacher had been involved in the creation of the team. Riku, Anne and Leila were founding members in the Finnish team. As Table 6.4. shows, the other two new team members, Pekka and Liisa, took fewer turns of talk than the others. Pekka was the one who took the fewer number of turns in all meetings. Anne took the greatest number of turns of talk. Leila and Riku also took many turns. Even in the number of words used the teachers had the same order.

Finally, I must stress that it is not reliable to judge turn-taking patterns only in terms of the frequencies of each of the four types of turn-exchange. For understanding the planning processes and speech styles ethnographic data was also used in both countries. The observation data and repeated viewing of videotapes confirmed that overlapping speech, latching speech, and interruptions did not predominantly function as

signs of control or dominance in the discourse. Overlapping speech and speech without pauses were above all indications of enthusiastic and cooperative building of sentences and turns.

These findings in both countries may be interpreted as pointing toward two qualitatively different versions of high involvement style in the Finnish and American teacher teams. During the first planning trajectories, common to the teams was that both the American and Finnish teachers rarely followed the one-at-a-time character of turn-taking which consist of a distinct turn followed by a slight pause. However, as the analysis showed, during the second planning trajectories one-at-a-time style accounted for over half of the turn exchanges in the Finnish team and also nearly half of the turn exchanges in the American team. In both countries the change from the first year to the second included an increase of pauses. In the American team, the members had experienced teamwork, and thus they used a more disciplined pattern of discourse. In the Finnish team, the pattern of cooperation changed from a more cooperative sentence building to a more coordinated one, and thus many more pauses emerged than during the first year their discourse was studied.

COMPARATIVE ANALYSIS OF MOOD USE

In planning discourse, the use of hypothetical speech is of particular interest. Buchwald (1995) checked the use of moods in the American data having noticed that the conditional verb form seemed to dominate. In addition to moods, I also checked the appearance of modal verbs in the Finnish data because they seemed to indicate many hypothetical turns. As Palmer (1986) put it, the quality of communication is manifest in the use of moods. The grammatical term “mood” expresses the speaker's way of reacting to the content of the message and also the way the speaker feels about the activity expressed by the verb. According to Palmer (1986), modal verbs are the means by which the speaker can express his or her attitude toward the proposals.

In the Finnish language there are four grammatical moods: the indicative, the conditional, the potential and the imperative. Indicative verbs are used in statements and questions about fact, and the indicative is the most frequent mood in Finnish. The conditional is a mood of conjecture, it is hypothetical and it expresses the activity as uncertain.

The conditional can function to create a “possible world” but it can also function as counterfactive and sometimes as reservation of comment, or comment on a given topic. The potential is a mood of possibility which is unlikely, and it is a rare mood in everyday speech. The imperative is a mood of commands and orders (Matihaldi, 1979; Hakulinen & Karlsson, 1994; Muittari, 1987; Andersson, 1994).

In English there are three moods: the indicative, the subjunctive, and the imperative. The most common mood in English, like in Finnish, is the indicative. The subjunctive mood is the mood of conjecture and of the hypothetical. It sets up an "if-then" situation and prediction. The subjunctive in English is typically marked by verb constructions such as “would” and “should” or by expressions such as “if”, “whether,” “otherwise, “or “unless.” The imperative mood is a mood of command or demand (Palmer, 1986).

Both in the English and the Finnish language the use of conditional implies politeness. Palmer (1986, p. 20) states that conditional verb forms and other modal verbs are employed especially to express politeness; questions and requests are moulded in such a manner that they take into account the person who is the object of a question or request. As Brown & Levinson (1978) put it, in threatening situations the most indirect expression is the most polite. Lakoff (1990) claimed that women produce grammatically more correct and polite language than men, using conditional expressions such as “would you please open the door” or “would you mind.” The Finnish researcher Matihaldi (1979) points out that on the one hand, the use of conditionals provides for polite distance between the participants, and on the other it may estrange speakers from one another.

Coding the moods was not easy because of the incomplete language typical of the discourse in the teams. The Finnish teachers also used the slang of Helsinki, and I had to “translate” the verbs first into literary language before placing them in different mood categories. Buchwald (1995) coded conditional verbs also as partial subjunctives, which were not complete two-part subjunctives but did set up hypothetical situations and posit outcomes in those situations.

Buchwald (1995) noticed that in the American teacher team's discourse there were some indicative verbs that functioned as conditionals. They did so by virtue of being part of a string of conditional turns and were

used for imagining action in a hypothetical situation. Also there were some conditionals that functioned as indicatives. They did so because they were traditionally conditional verb constructions, such as “could” or “might,” which were used for talking about a remembered event rather than a hypothetical one. In the Finnish data there were some indicative verbs that functioned as conditionals. They were part of conditional sentences, and they were used to set up a hypothetical situation. There were no cases where conditionals functioned as indicatives.

To get a clearer picture of mood use, the moods were coded and counted systematically in both countries. The findings are shown in Table 6.5. The table indicates the frequencies and percentages of each type of mood in all of the meetings (appendix 2 indicates the frequency and percentage of each type of mood within each of the meetings (M) as well as in all of the meetings).

MOODS	**FINLAND**				**USA**			
	1993		**1994**		**1992**		**1994**	
	f	**(%)**	**f**	**(%)**	**f**	**(%)**	**f**	**(%)**
Imperative	29	(1)	105	(4)	7	(1)	5	(1)
Conditional	260	(12)	375	(14)	604	(53)	411	(45)
Indicative	1860	(87)	2229	(82)	516	(46)	485	(54)
TOTAL	**2149**	**(100)**	**2709**	**(100)**	**1131**	**(100)**	**901**	**(100)**

Table 6.5. Percentages of grammatical moods in Finland and the USA during both years

In the Finnish team the basic feature in the teachers' talk was the prevalence of the indicative mood during both years. The use of conditional verbs also remained nearly unchanged. In 1994, the pattern of Finnish team discourse with respect to grammatical mood remained as linear as in 1993. Interestingly enough, the teachers used more imperatives during the second planning trajectory (increasing from one to four percent of all verbs).

In the American team, a different pattern emerged. Conditional phrases represented more than half of the total number of verbs during 1992 and 45% in 1994. In 1992, questions and proposals were also expressed as conditionals when creating possibilities. It was difficult to distinguish between questions and statements. Many statements that seemed to be implicit questions contained conditional verbs such as could and

should. An excerpt from the third meeting of the American team demonstrates this phenomenon.

Jill: *So you're like the expert group, (you're the experts) and you would teach first the information to your own class and then they disperse them and do it with the other kids?=*
Lily: *=Well see, we could do it that way, too. And that's just another way to do it.*

However, in 1994, the use of indicative verbs increased and the use of conditional verbs decreased. Buchwald (1995) found that the higher percentage of indicative verbs in the Gold Rush planning discourse resulted from increased time spent in considering objectives, working out the logistics of obtaining materials, and in particular, reviewing plans. In 1994 the pattern of American team discourse with respect to grammatical mood use changed into one more linear and coordinative.

In the Finnish team's discourse both conditional verbs in general and indicative modal verbs functioned to create possibilities. When the teachers planned and talked about different possibilities they often used indicative modal verbs. In order to get a clearer picture of modal verbs, I counted all the modal verbs from the meeting transcripts of 1993 used in this study. In those meetings indicative modal verbs were used 150 times (7 % of all verbs). The teachers used indicative modal verbs (7 %) nearly as often as all conditional verbs (8 %). The following excerpt from the first meeting of the Finnish team shows how the modal verb "can" was used in the planning discourse.

Anne: *But it is quite as, we can leave it quite open as well, it can take two weeks, if it feels that then enthusiasm is out and we cannot have everything done, or then it can take five weeks. Or six weeks.=*
Liisa: *Cannot it also be so that which class has enthusiasm?*

In the Finnish team both male and female teachers used the conditional verbs almost equally. I counted the use of the conditional of each teacher in the 1993 Finnish team. Riku used conditional verbs 44 times (24%), Pekka 21 times (12 %), Anne 44 times (26 %), Liisa 20 times (12 %), and Leila 44 times (26 %). The use of conditionals gave little support to Lakoff's (1975) claim that women would use more polite language than men.

In the American team's planning discourse the indicative was used as a basis for decision making or changing course before and after launching again into consideration of possibilities (Buchwald 1995, p. 133). The Finnish data indicate that, in addition , conditionals as well as modal verbs may be used as the means for outlining possibilities and alternatives.

No dramatic change in mood use between the studied years in the Finnish team could be identified. The slight increase in imperative use may reflect the change from a more cooperative pattern to a more coordinative one. In the American team, the teachers used more indicative verbs during their second planning trajectory. This may reflect the fact that the team members were more experienced in working as a team, and thus they used a more disciplined pattern of discourse.

COMPARATIVE ANALYSIS OF TOPICS AND CONCERNS OF DISCOURSE

Brown & Yule (1983) point out that the notion of topic is an intuitively satisfactory way of describing the unifying principle which distinguishes one stretch of discourse about something from the next stretch about something else. They distinguish between speaker's topic, which refers to a participant's personal contribution, and discourse topic, which is considered in terms of what the participants share. In the present study “topic” means "what a conversation is about," which is what Brown and Yule (1983, p. 73) mean by discourse topic.

Besides topics, concerns are also analyzed in this study. Buchwald (1995) noticed that there were certain overriding issues to which the American teachers kept returning. These concerns were repeated in different topics. In the analysis of the Finnish team's discourse, I noticed that one topic often contained several concerns expressing the participants' different perspectives on it (see Holland & Reeves, 1994).

For a better understanding of the classification and coding of the topics and concerns. In the following I explicate how I identified the concerns in the 1993 Finnish team's first topic in meeting 10 (which I named “How to end and present the outcome of the unit Local Community”) .

The teachers began their meeting 10 by discussing how to present the outcomes of the five different groups. They decided to collect the outcomes within every group and present them to the others on the walls of the corridor and in their newspaper as an outcome of the newspaper editing group. The concern "g" (which I designated as "Organizing theme-working") manifested itself in discussions such as deciding on the time and place.

Anne: *But do you think that next week you'd be able to show the outcome in some way?=*

Pekka: *=Yes, we can do that, I mean they'll then show what they've been doing lately. Depends on the situation really.=*

Riku: *=What do you mean? Will they be showing their thing in their own group then?=*

The concern "d" (designated as "The motivation of students") manifested itself in sequences such as the following.

Riku: *It's useless to try to get them all, well, you know, there for the whole gang to present things, and anyway the kids will grow tired and they'll no longer be interested, er=*

Liisa: *=Yes, about that. I think it's necessary to think it out pretty carefully, well, er, just this thing (...) Yes, the thing is how these groups will present their outcomes to the other group, because then we're talking about a great mass of people moving around, the question is for how long they'll be willing to listen.*

In the Finnish team, the following nine concerns were identified in the numerous topics which arose during the twelve meetings: (a) Dividing students into groups, (b) Teachers' collaboration inside the team, (c) Clarifying the idea of theme-working, (d) The motivation of students, (e) Collaboration and network building with the community outside the school, (f) Contents of teaching, (g) Organizing theme-working, (h) Students' learning, and (i) Teachers' responsibilities.

During 1994, I identified similar concerns. However, the concern "clarifying the idea of elective courses" was totally absent. Also three

new concerns emerged: (j) Teacher's commitment to the elective courses, (k) Connecting different themes to actual teaching projects and (l) Costs of the elective courses. For example, the new concern "Commitment of teacher" emerged because the team model was not permanent any more.

I also checked the topics of each team meeting. For example, in the first meeting of 1993 three topics arose twice. As the participants returned to topics already discussed, they approached them with somewhat different concerns. In the first meeting of 1994 four topics arose twice. During all Finnish team meetings in both years at least one topic was taken up again at least once. Some topics arose in more than one meeting.

In the American team discourse the five recurring concerns identified by Buchwald (1995, p. 136-137) during the seven meetings in 1992 were: (a) Conceptualizing the unit, (b) Dividing children into "cross-age" groups and sub-groups, (c) Use of time, (d) Materials, and (e) Teachers' responsibilities. During 1994, Buchwald (1995, p. 258) identified the same concerns, and she also found four other concerns: (f) Objectives, (g) Coordination, (h) Use of space, and (I) Relations with non-GEP teachers.

The new concerns of the team in 1994 emerged under conditions of greater complexity and intensity in time. The new concerns in the Gold Rush planning discourse resulted from increased time spent in considering objectives, working out the logistics of obtaining materials, and reviewing plans. Under the condition of the inclusion of non-GEP teachers, there was more need for review and a new need to consciously consider the objectives of the curriculum. It might not have been possible for the teachers to organize 250 students through different activities unless they had given thought to coordination and created such a tight organization with master schedules and group lists.

For example, in the second meeting of 1992 the topic "food preservation" arose no less than nine times with different combinations of concerns in the meeting. This topic did not reappear in the same form. First the teachers brainstormed about food preservation as a central curricular theme and about which foods could be preserved. During the meeting they discussed, for instance, how to demonstrate food preservation in their own classrooms but still carry out

"cross-aged" work. In 1994, a different pattern of topic introducing emerged. For example, the only repeated topic of the second meeting was the topic "what has traditionally been done by the fourth grade class as part of the Gold Rush". This topic arose three times during the meeting.

In order to trace the essential differences in the content of discourse, I first checked more carefully the prevalence of concerns raised during both planning trajectories in every meeting of the Finnish team. I can not compare the percentages of the concerns of all between the countries since Buchwald (1995) did not do a quantitative analysis of concerns. To give a clearer picture of the changes, Table 6.6. presents the frequencies and percentages of the concerns of all during both planning trajectories.

CONCERNS OF FINNISH TEAM	**1993** **f (%)**	**1994** **f (%)**
Dividing students into groups	21 (10%)	25 (26%)
Teacher collaboration inside the team	25 (11%)	4 (4%)
Clarifying the idea of the model	17 (8%)	0 (0%)
The motivation of students and possibility to choice	24 (11%)	4 (4%)
Network-building with the community outside the school	29 (13%)	4 (4%)
Contents of teaching	37 (17%)	6 (6%)
Coordinating the unit	39 (18%)	29 (31%)
Student's learning	15 (7%)	2 (2%)
Teachers' responsibilities	11 (5%)	9 (10%)
Teachers' commitment to the elective courses	0 (0%)	5 (5%)
Connecting different themes to actual teaching projects	0 (0%)	3 (3%)
Costs of elective courses	0 (0%)	4 (5%)
TOTAL	**218 (100)**	**95 (100)**

Table 6.6. Concerns of the meetings of the Finnish team during both planning trajectories

As Table 6.6. indicates, during 1993 the most frequently discussed concerns were "coordinating the unit", "network contacts," "collaboration inside the team," and "motivation of students." In 1993, "coordinating the unit" arose mostly in meetings during the execution of the unit and much less in planning meetings. One should recall that teachers planned the model of theme-working in planning meetings when they mostly discussed "clarifying the idea of theme-working," "teachers' collaboration in teams," "network contacts," and "motivation

of students." During the first four meetings in 1993 the teachers shaped the model of theme-working, which was based on a shared, broader, networked theme, with "motivation of students" as its basic educational issue. One of the least discussed concerns was "students' learning." However, in meetings during the execution of Local Community this concern was quite well represented.

In the meetings of 1994 the most frequently discussed concerns were "coordinating the unit," "dividing students into groups," and "teachers' responsibilities." There was a total absence of concern for "clarifying the idea of model". The least addressed concern was "students' learning" which was discussed only during the evaluation meeting. As stated above, the team's assignment and task were completely different in 1994. The teams were not permanent. Compared to five participant in 1993 the studied team now had eight participants, and it was possible for all the teachers responsible for classes 3-6 to participate in the meeting without advance notice.

In the American team the nature of discourse also changed to being more coordinative in 1994. According to Buchwald (1995, p. 262), the issue of coordination did not arise as a separate concern in the Harvest Festival planning in 1992. In the Gold Rush discourse the teachers raised the concern of coordination in relation to the scheduling of the event amidst the other activities of the school. Most discourse about coordination issues were also discourse of the use of time or the use of space. Table 6.7. compares the most frequently discussed concerns of the Finnish and the American team.

FINLAND	**USA**
1993: *Coordinating the unit *Network contacts *Collaboration in team *Motivation of students	**1992:** *Conceptualizing the unit *Dividing students into groups *Use of time
1994: *Coordinating the unit *Dividing students into groups *Responsibilities ofteachers	**1994:** *As in 1992 plus *Objectives *Coordinating the unit

Table 6.7. The most discussed concerns of team meetings in Finland and the USA

As Table 6.7. indicates, the concerns of the Finnish teachers changed qualitatively more than the concerns of the American teachers. Besides "coordinating the unit," the most frequently discussed concerns in 1993 involved "teachers' collaboration" and "student motivation," while the most frequently discussed concerns in 1994 were coordinative in nature ("dividing students into groups", "coordinating the unit"). In 1994, the American team spent the most time discussing two new concerns (coordination and objectives) in addition the to addressing same concerns discussed in 1992.

Taken together the comparative analysis of topics and concerns revealed during the first planning trajectories shows that the American teachers frequently circled back to topics they had discussed before. Tannen (1984, p. 30-31) listed the following characteristics of high involvement style in topics: (1) preference for personal topics, (2) shifting topics abruptly, (3) introduction of topics without hesitance, and (4) persistence in reintroducing topics if necessary. In the Finnish team the teachers introduced topics without hesitance and also reintroduced some topics during both planning trajectories. The Finnish planning talk was characterized by a quite succinct and linear introduction of topics, while the American planning talk of the 1992 team was characterized by more circular and elaborated reintroduction of topics. This could be interpreted as supporting the existence of two different high involvement styles in the teams.

However, in the 1994 American team a different pattern of topic introducing emerged; the teachers did not generally repeat the topics. The new concerns "Objectives," "Coordination," "Use of space," and "Relations with non-GEP teachers" of the 1994 team emerged under conditions of greater complexity (more members in the team) and intensity in time. The concerns of the 1994 Finnish team changed compared to the 1993 team as well. The teachers discussed concerns such as "coordinating the unit," "dividing students into groups," and "teachers' responsibilities" much more than in 1993. In 1994 the team's task and cooperation pattern were completely different.

COMPARATIVE ANALYSIS OF THE SHAPE OF PLANNING TRAJECTORIES

There are many ways to visualize planning trajectories. For instance Gersick (1988) used the metaphor of a pinball game to describe planning discourse in a task-force team. Often the different styles are depicted along a linear dimension versus a circular or spiral one. Fisher (1981) described the linear style in problem solving as being based on a step-by-step progression which assumes a given order. According to him the spiral model of problem solving is cumulative and progressive, reflecting continuous modification of ideas and backtracking to ideas.

In all the topics and concerns of the discourse one can compare typical sequences which function as basic building blocks in the planning trajectories of the Finnish and the American teams. Comparative analysis of topics and concerns revealed that in the Finnish team in both years the teachers often took up one topic at a time and reached a decision on it before continuing. Although at least one topic arose again in every meeting, this was far less common than in the American team in 1992. In other words, a relatively linear progression with occasional reopening of a topic was characteristic of all the meetings of the Finnish team in 1993 and 1994. The shape of the planning processes in the Finnish team can be characterized as a zig-zag (Kärkkäinen, 1996).

In 1992 the American teachers frequently circled back to topics which they had discussed before. They planned the contents of each theme (corn, wheat, etc.) together in detail, as shown by their circling back nine times to the topic “food preservation” in one meeting alone. The teachers figured out jointly not only what to teach but how to teach, at times in minute detail. This pattern changed in 1994 when the teachers basically took up one topic at a time. In 1992 the discourse of the team constantly circled back and frequently reopened already discussed topics. The shape of this process may be characterized as a recurring spiral, consisting of a number of smaller parallel spirals, each of which represents a recurring topic in a meeting (Buchwald, 1995). The Gold Rush planning was not a repeated spiralling through curriculum possibilities but a push along several adjacent paths toward a final plan (Buchwald, 1995). This planning trajectory was relatively uni-directional and linear and took a form of the zig-zag, as was observed for the Finnish team in both years.

DISCUSSION: WHY WERE THE PLANNING TRAJECTORIES DIFFERENT?

In the American team's planning talk, overlap and the abundant use of conditionals were connected to a spiral planning trajectory. In the Finnish team, talk without pauses and the abundant use of indicatives were connected to a more linear, zigzagging planning trajectory. These findings indicate a real qualitative difference between planning talk in the two cultures.

In the following I discuss different possible explanations for these differences between the countries. These are universal explanations which are often used in the literature: differences in cultures and differences in gender.

Differences in cultures

American speech culture is often characterized as “verbal” (e.g., Jonsson & Jonsson, 1975; Okabe, 1983), while the Finnish culture is often characterized as slow or silent (e.g., Lehtonen & Sajavaara, 1984). Although there are national and international differences in speech cultures, characterizations of national cultures are often stereotypes. For example, Lehtonen (1979) studied pauses and rate of speech in the Finnish language and compared it to other cultures. He found that an average Finnish speaker's rate of speech is not slower than that of speakers of other languages. The percentage of pauses in Finnish when compared to total speaking time was about the same as it is in other languages, including American English.

Buchwald (1995) pointed out that overlapping speech did not seem to disturb the American teachers, and they produced the units collaboratively in both years. Politeness strategies in each culture are different (Gudykunst & al., 1988). The use of conditional and other modal verbs is often connected with polite speech. In spoken Finnish language the use of the conditional is quite rare, and its use may also estrange participants from one another (Matihaldi, 1979). Both in Finnish and in English the indicative is the most frequent mood. The abundant use of conditionals by the American team was surprising. When one looks at the frequencies of the moods in the Finnish team,

the results are to a great extent similar to those obtained by other researchers. For example Matihaldi (1980) found that in informal discourse the indicative was the most common mood and that the conditional occurred in approximately six per cent of the verb forms. The use of imperative and potential was rare.

In Ting-Toomey's (1985) theory, individualistic, low-context cultures emphasize individual value orientations and direct verbal interactions, while collectivistic, high-context cultures emphasize group value orientations, indirect verbal interactions, and contextual verbal styles. Ting-Toomey argues that in low-context, individualistic cultures problem solving in conflict situations proceeds in an analytic, linear style, while in high-context cultures conflict situations are handled in a synthetic and spiral style. However, Ting-Toomey classified both Finland and the United States as individualistic, low-context cultures and Japan, for example, as a high context, spiral style culture. Also such authors as Ito (1992), Levine (1985), and Park (1979) stated that Americans use direct, instrumental style of verbal communication which contains precise representation of fact, technique, or expectation.

These models of cultural explanation leave the differences between the two teams unexplained. General cultural styles of speech do not seem to constitute a sufficient explanatory framework here.

Differences in gender

In the American team during the first planning trajectory all teachers were women (during the second planning trajectory two “outside” male teachers participated in the meetings), while in the Finnish team, in 1993, there were two men and three women, and in 1994 six women and two men. Interruption and overlapping have often been tied to gender dominance in discourse (e.g., Kollock & al., 1985). The present study showed that in the 1993 Finnish team both male and female teachers interrupted each other almost equally. Neither did the length of turns correlate with gender. In the Finnish team it was actually the women who used longer turns. The American female teachers overlapped frequently in their meetings. Hirschman (1994) also found in her study, where two females and two males talked to each other in all possible pair-combinations, that in fact female speakers overlapped each other more and that their conversation seemed to be more fluent than in other combinations.

In the American team the heavy use of conditionals might be connected with the fact that they were women. For instance, Lakoff (1990) found that women's talk is more indirect and polite than men's talk. Buchwald (1995) stated that the American teachers very often softened their questions and statements with conditional verbs. However, there were no remarkable differences in the use of conditionals between sexes in the Finnish team.

Again, it seems that gender alone does not provide a sufficient explanatory framework to account for my findings. In the following I discuss differences in the activity systems of planning as an explanation for the differences between the two planning processes within the American and the Finnish teams and between the countries as well.

Differences in the teams' activity systems of planning

The differences in planning discourse and planning trajectories are not sufficiently and unambiguously accounted by the universal explanations presented above. In the face of my empirical findings, these explanations are internally inconsistent. An alternative, contextualist viewpoint to explain the differences in planning talk and trajectories is provided by the framework of activity theory and developmental work research. The notion of activity system is crucial, because it directs our focus to systemic differences in the teams' practices.

In this chapter I have focused primarily on the central instrument (or instrumentality) of the activity systems of the teams, namely the planning talk. The other components of the planning activity systems are introduced here more hypothetically, and I will need to examine them thoroughly in future analyses. In Table 6.8. below I present the nature of the teams' evolution in Finland and in the USA. I have focused my attention on the subject, object, instruments and community of the teams' activity systems. In the table, the form of the trajectory is also presented.

	FINLAND	USA
	1993	**1992**
Subject	Permanent team	Permanent team
Object	Shared, networked and open	Shared, coherent and compact
Discourse as instrument of planning	Cooperative (talk without pauses, cooperative concerns of discourse)	Cooperative (overlapping and conditional talk, cooperative concerns of discourse)
Community	Little interaction with the rest of the school	solation from the rest of the school
Form of trajectory	Zig-zag	Spiral
	1994	**1994**
Subject	Temporary task force team	Expanded permanent team
Object	Fragmented	Shared, more complex and networked
Discourse as instrument of planning	Coordinative (talk with pauses, coordinative concerns of discourse)	More disciplined pattern of discourse (more pauses, indicatives in talk, coordinative concerns of discourse)
Community	Embedded in overall reorganization of collaboration in the school	Active involvement with the rest of the school
Form of trajectory	Zig-zag	Spiral

Table 6.8. The nature of the teams' evolution in Finland and in the USA

The findings show important changes in the teams' activity systems in both years. In Table 6.8. changes in turn-taking, mood use, topics, and concerns are interpreted as belonging to the instrumentality of the activity system. The nature of the Finnish teams' talk changed from cooperative (talk without pauses, cooperative concerns of discourse) to coordinative (talk with pauses, coordinative concerns of discourse). The form of the planning trajectories of both years could be characterized as zig-zag.

In the Finnish team the evolution of team was discontinuous. In 1993 the team was relatively autonomous and separate from the rest of the

school. However, the team had space to plan and implement the curriculum since it was supported by the school and the parents. The following excerpt from meeting 10 shows that the teachers wanted to present their work to the whole school and the parents as well.

Anne: *Yes an exhibition, that is as much as possible there on the corridor wall, that actually I thought that I´d make the paper as well such wall newspaper, all pages open in there.=*
Pekka*: I had the parents in the parents' evening interested in the paper that they'd like to have one at home.*
Leila: *Then I think that now would be the time in the staff meeting for somebody to introduce shortly what we're doing.*

In 1994 the situation changed, as orders came from above to restructure into teams. Expansion in the organizational scope could be identified, namely that the teams were embedded into the overall reorganization of collaboration within the school.

The objects and outcomes of the teams were constructed in differed ways. As I stated in Chapter 3, the concept of object is central from the activity-theoretical viewpoint since the activity is defined with its help. During the first planning trajectories, the Finnish team planned a differentiated unit Local Community. In this unit the outcome of each group was presented in the newspaper produced by the newspaper editing group. The Local Community unit as an object of planning resembled a complex and open network of different, largely outward-oriented activities. During the second planning trajectory, the Finnish team coordinated fragmented, and classroom-centered elective courses.

Concerning the American team, in 1992, the talk was cooperative (overlapping and conditional talk, cooperative concerns of discourse), however, in 1994, a more disciplined pattern of discourse arose (more pauses and indicatives in talk, as well as the emergence of coordinative concerns in the discourse). The form of trajectory changed from spiral to zig-zag. The zig-zag form in 1994 was well suited to a situation of increased complexity and time pressure.

The 1992 team was the only team at their school. Together with active parents the teachers had established a cooperative educational venture called the Global Education Program (GEP). It was a separate program staffed by these five teachers, who organized themselves as a team as

they started the program. Parents chose GEP for their children, instead of the regular classes. This venture was a challenge to the teachers, and they needed to show others that they could work together to plan and carry out a unique GEP curriculum. Teachers in GEP faced many difficulties with other teachers. One team member expressed her perspective on how other teachers of the school felt about the GEP.

Jill*:* I see this as a real separate part of the whole school*. Not because it's really that different. Well, it is. But because there's a lot of animosity at Horizon towards it.* I think teachers see that they're pulling regular staff members out and putting them in this program and from the complaints that have been put out, they feel that we're getting a lot of extras. (Buchwald 1995, p. 394; italics added by the present author)

An interesting feature of this excerpt is that the problem is brought forth in the form of a dilemma (see Billig & al., 1988): *"Not because it's really that different. Well, it is."* By dilemmas is meant internal contradictions in the contents of the activity, speech or thinking of a person or group. Such dilemmas manifest themselves for example as hesitations and hedges in which the speaker often actually refutes his or her own preceding statement (Billig & al. , 1988). At least in the Finnish language, dilemmas are often marked by clusters of "buts" (recall: *"But* because there's a lot of animosity...."). To manage the situation the GEP team had to plan the teaching and each theme very carefully, at times in minute detail, without relying on outside help. Buchwald (1995) noted that there was a remarkable lack of intra-team conflict in the meetings. On the other hand, there clearly was talk about conflicts concerning the team's relationship to the rest of the school. The American team implemented the unit in a tight and compact manner, within four successive days, with only a weekend in between.

In 1992, the American team planned a compact and coherent unit Harvest Festival. In its implementation, the celebration brought the groups together . In 1994, the team actively involved the rest of school in the planning of the Gold Rush theme. The team no longer felt that their position was threatened. The extended team planned a networked and open Gold Rush theme. They could afford to be directed outward beyond the classroom walls.

The fact that the objects were so different could be interpreted as evidence for different objects requiring different instruments and styles

of planning, thus yielding different trajectories. But why did the teams construct such different objects in the first place? Causality in an activity system is systemic and reciprocal, not linear and uni-directional. In an activity system all the components interact with and influence each other.

Were the different objects the original cause? Or were the different communities perhaps the cause underlying the construction of such different objects? But what made the two teams construct their communities in such different ways? Was it after all the different instrumentalities of discourse and reasoning that led them to their particular constructions of community and object? We could go on forever in such circles. The observations made above indicate that it is precisely the configuration and quality of the whole activity system, the local interaction of all its components in the two teams, that led to the different styles of planning talk and planning trajectories. In this perspective, it is not particularly useful to seek one isolated initial or decisive cause.

PROGRESS OR REGRESS IN TEAM EVOLUTION?

In the beginning of this chapter I also asked how one should understand the nature of development in the team. What is progress or regress in the team? How could one evaluate the development of the teams?

In the light of the results presented above the nature of the development of the Finnish team appears to be regression. The elective courses were carried out in a fragmented and class-centered form. The elective courses team did not share a common object. The nature of discourse changed from cooperative to coordinative. It was unclear who was participating in or committed to the planning and implementation of the elective courses. I asked the teachers which model functioned better, the model of 1993 or that of 1994. All the three teachers who participated in both teams preferred the elective courses model. They said that cooperation among all the teachers was more successful. Leila also said that during 1993 the theme-working had been a “special event” and that it had not been as much work as the present elective courses clearly were. Anne said that the teachers had worked as a team during that year. She said that she was a little disappointed with the

size of the present team. Excerpts from the interviews of Leila and Anne are presented below.

Leila: *The cooperation the elective courses have brought along as for the workplace community, the whole school, is such a unifying factor. That last year's theme-working was somehow deviated from the day and the week, that it was such special thing. I think these [the elective courses] are much more distinctly like part of my work and part of teaching work of this school.*

Anne: *Most certainly this is in even greater degree team working than before, and the cooperation is sort of directed particularly towards such planning of common projects. Of course now everybody has so much experience about this kind of activity that there's no need for such constant kneading and conversation in that sense as when planning the theme-working of 1993. I'm not personally very happy with that this has expanded into such large group [of teachers].*

When one examines these statements it seems that collaboration in the school during the elective courses has developed. Thus, progress was observed in relation to the community. Expansion of the organizational scope occurred.

The evolution of the American team can be depicted as continuous. The team was permanent and it involved the rest of school actively in the planning and execution of the Gold Rush unit. According to the criteria of Katzenbach et al. (1993), in the American team progress was observed both in object formation and organizational scope. The teachers (from below) wanted to have a broader representation of the school in the team.

These teacher team cases point out the contradictory development of the team. The teams studied here did not develop in a linear manner via certain phases from a group to a "top" team (cf. Katzenbach et al., 1993). It is not a matter of the teams' endogenous development. Rather, the boundaries of these teams were opened (cf. Ancona et al.,1992). In the American team, the subject, object and community expanded. In the Finnish team, the community, division of labor and rules expanded because the whole school was restructured into teams. This expansion had an influence on the division of labor and the rules of the whole school. At the same time the object was fragmented into the separate

elective courses without any shared theme. From the systemic viewpoint of the activity system it can be observed that regression in some of its elements can happen concurrently with progress in some other element. In the Finnish team the crucial question is whether the expansion of organizational scope will enable the development of new object formation in the team - or will this be marginalized as a cosmetic change or a bureaucratic form? Will these temporary task-force teams develop a new kind of shared object and pedagogy? In the American team the crucial question is whether the expansion in organizational scope will remain permanent or evaporate.

In the following chapters, I will come back to the issue of "progress and regress in team evolution" by going further into the analysis of the Finnish teams. In the next chapter, I will examine the historical roots of teacher teams' discourse before and after the school's organization was changed. In the chapter after that, I will conceptualize and identify collaborative learning within and between the teacher teams. The change in the organization of teachers' collaboration enables the evaluation of collaborative learning from the viewpoint of the teams' organizational structures. Finally, I will also explore the external perspective of the teams. I will examine how the teacher teams use their network contacts to plan their curriculum units.

7. SOCIAL LANGUAGES AND CHANGE IN THE ORGANIZATION OF TEACHERS' COLLABORATION

The preceding chapter showed the changes in discourse at a rather rough level focusing on the turn taking patterns, the use of moods in the talk, as well as the topics and concerns of the discourse. In this chapter, I will go further in the analysis by examining the discourse in the context of teachers' activity. Here, the studied activity of the teachers is the planning activity of the curriculum units.

The teams were founded on different concepts as the preceding chapter shows. The 1993 team was a permanent team, founded on the teachers' own initiative, while the 1994 team was a temporary team being collected over a period of six weeks and its task being to plan and implement the elective courses during this period. The whole school was organized into three temporary, changing elective courses teams by the administration. The motivating question of this chapter is how the nature of the teacher teams' discourse changes as the organization of teachers' collaboration is changed within the Finnish school. From the viewpoint of comparing the two teams, it is noteworthy, that in spite of the change in the school organization, both teams were alike in the regard that they planned the curriculum units in six-week periods. Again, I am using transcripts of the team discourse from the planning processes as data.

The changes in talk between the planning processes are not self-evident. As I pointed out in Chapter 1, one might expect that the historically evolved discourse patterns within a profession are independent of the specific, organizational arrangements of teacher collaboration, or, alternatively, one could argue that talk is the most fluid instrument of collaboration and, thus, particularly sensitive to change in the organization. My first research question is " What are the features of discourse as an instrument of collaboration of teachers?" The second question is related to the change in the organization of the teachers' collaboration, " Are there any respective changes in the quality of the discourse? "

In the following, I will discuss the theoretical framework of my analysis, particularly the concept of social languages. Next, I will present the results of the analysis of the social languages. Finally, I will

interpret the findings in terms of how they may be connected to organizational change within the school.

THEORETICAL FRAMEWORK

In the present study, I examine professional discourse of teachers. I am not interested in to study the features of teachers professional discourse as such, but as an instrument of collaboration of teachers. Thus, the theoretical framework of the analysis of this chapter is based on the concept of social language taken from Mikhail Bakhtin's (1982, 1987) work. Bakhtin (1895-1975) was a Russian philosopher, cultural historian, and scholar of literature. His ideas of dialogicality, multivoicedness and social languages entail three kinds of benefits for an empirical analysis of talk such as my study (see R. Engeström, 1995). First, the concept of social language directs the attention to the discourse used in concrete situation by people. Second, the concept of social language stresses the historicity of activity and language. Third, the concept of social languages focuses the analysis on the multiplicity of perspectives and voices in the talk.

Social language can be defined as "a discourse peculiar to a specific stratum of society (professional, age group, etc.) within a given social system at a given time" (Bakhtin, 1982, p. 430). According to Bakhtin (1982, p. 236), at any given historical moment of verbal-ideological life, each generation on each social level has its own language. Every age group has also its own language and its own vocabulary. For Bakhtin (1982), the word in language is half someone else's. It becomes one's own only when the speaker populates it with his or her own intention, his or her own accent. Social language shapes what an individual voice can say. When calling forth social languages, speakers use locally only separate words, stresses, and aspects as indicators of the social language.

Speech in which individual utterances are spoken in a social language, or in which a voice speaks through another voice or social language, represents polyphony (Bakhtin, 1982). In polyphony, Bakhtin distinguishes between "heteroglossia" and "ventiloquation." *Heteroglossia* refers to a mutual dialogical event of several social languages. *Ventriloquation* refers to utterances in which the speaker

"borrows" another social language. Bakhtin (1982) also used the notion of "orchestration," referring to the means for achieving polyphony.

The notion of “register” used in sociolinguistics (Halliday, 1978, see also Burke, 1987; Crystal, 1991) is a close relative to the notion of the social language. According to Halliday (1978, p. 35), a register refers to what you are speaking, determined by what you are doing, and expressing social division of labor. For Crystal (1991), register refers to a variety of language defined according to its use in the social situations. In different situations, the same person will employ different varieties of language - in sociolinguistic terms, different registers (Burke, 1987, p. 6). Table 7.1. presents similarities and differences between Halliday’s (1978) notion of register and Bakhtin’s (1982, 1987) notion of social language.

	SOCIAL LANGUAGE (Bakhtin)	**REGISTER (Halliday)**
Interest	Discourse as an instrument of activity	Reveal varieties of language according to social context of language use
Role of culture and history	Historical forms of discourse	Culture as given and without history
Quality of discourse	Multiplicity and interaction of languages and perspectives (dialogicality)	Different ways of saying different things

Table 7.1. Comparison of Bakhtin’s (1982; 1987) notion of social language and Halliday’s (1978) notion of register

As pointed out in Table 7.1., the interest of the analysis, the role of culture and history, and the focus of the analysis are different in approaches based on these two notions. The notion of social language directs the analysis to the discourse as an instrument of activity and stresses the historicity of activity. The notion of register directs the analysis to semantics, that is, varieties of language according to its use.

Both “register” and “social language” stress the multiplicity of ways of saying different things, and both mention occupational varieties as a typical example. However, register focuses on “context” as the determinant of language variation, leading to a somewhat straightforward model of behavior.

"The notion of register is thus a form of prediction: given that we know the situation, the social context of language use, we can predict a great deal about the language that will occur, with reasonable probability of being right." (Halliday, 1978, p. 32.)

The notion of register refers to the external elements of the social context of language use. For instance, in one kind of social context, we behave and talk in one way, and in another kind - another way.

Social language, on the other hand, is not a predictive concept. Social languages are *historically* produced in relatively stable contexts of activity. However, in their ongoing activities and situations, individuals and groups typically have access to and draw upon *multiple* historically formed and layered social languages. Practically any complex activity or situation can be expected to manifest this heteroglossia. Instead of prediction according to social context of language use, the task is one of data-driven empirical identification and historical interpretation of the multiple languages interacting in activity. It is this heteroglossic multiplicity and layeredness that creates tensions, ruptures and innovations in discourse.

The notion of the social language is one part of Bakhtin's (1982; 1987) dialogical theory. Two other important concepts are "voice" and "speech genre". Gudmundsdóttir (1999) relates Taylor's (1985) notion of the "language of practice" and Bakhtin's (1987) "speech genre" as explicating similar social and cultural phenomena. According to Bakhtin (1987), in the genre, the word acquires a particular typical expression. Genres correspond to typical situations of speech. T aylor (1985) points out that words do not exist without being embedded in culturally meaningful activities. This means that, for instance, in school teachers use different languages of practice for different social and cultural contexts.

Ritva Engeström (1995) has shown an interesting parallel between Bakhtin's concepts of social language, voice, and speech genre, on the one hand, and Leont'ev's (1977) concepts of "activity, " "action," and "operation" on the other hand. Bakhtin's notion of social language corresponds to Leont'ev's concept of collective activity, or activity system. Just as an individual action is embedded in and realizes an historically evolving collective activity, the voice of a speaking subject

always calls forth and reproduces a social language to produce an utterance.

An action is an individually performed, goal-oriented and situated way of realizing collective activity. Actions are artifactually mediated and involve cultural interpretation. Ritva Engeström (1995) interprets Bakhtin's (1982) notion of voice as action. Bakhtin (1982, p. 434) defines voice as the "speaking personality, the speaking consciousness." As an action, voice connects an utterance to other utterances, past and future, locally and historically. Bakhtin's concept of "voice" resembles in certain respects Halliday's concept of "dialect," which represents language variation "according to the user" (Halliday 1978, p. 34-35). I will not discuss here the important differences between these two concepts. However, it must be pointed out that in a more Bakhtinian framework of analysis, as used for example by Yrjö Engeström (1996a) in his study of discourse in courts, the notion of dialect refers simply to subtle variations within broad social languages.

Actions in turn are carried out by means of operations which bear certain typified repeated features in response to conditions of action. R. Engeström (1995) relates Bakhtin's notion of speech genre to Leont'ev's operation. Bakhtin (1987, p. 60) defines speech genres as "relatively stable types of utterances" typical to a specific sphere in which language is used. Wertsch (1991, p. 61) characterizes speech genres as "ready-made ways of packaging speech."

METHOD OF DATA ANALYSIS

The analysis of data for the purpose of finding the social languages of the discourse comprised the exploration of the theoretical and historical roots of the social languages. The languages were named according to the topics of discourse identified in the previous analysis. To explore and name the social languages, I examined the historical evolution of teachers' work in the light of literature and research. At the same time, I examined the transcripts of every topic. Through this bi-directional examination, I identified and named the languages which were present in the two teacher teams' discourse of each topic. I further divided the talk of the topics into variations of languages. The idea of identifying the variations was to cover the more subtle differences in the ways of talking within a social language. Such variations of dominant social

languages may also be called “dialects” (see Y. Engeström, 1996a, p. 201). In the average, two variations of social languages were identified within each topic.

There were also discourse sequences within some topics which I could not place into any identifiable variations of the social languages I had found. I examined these possible “seeds of new languages” separately (Ritva Engeström, 1995). I also counted the frequency of each variation of language within each topic of the meetings as well as in all of the meetings.

The social languages identified in this analysis were not monolithic. Rather, they were stratified, sensitive to change and linked together. Each teacher "drifted" between languages instead of representing one fixed language of his or her own.

The analysis of the data led to the identification of three main social languages: the language of practical experience, the language of administration, and the language of pedagogical reform. These three main social languages were further divided into a number of variations.

There were four variations of the language of practical experience: (1) teacher's autonomy, (2) us versus them, (3) everyday experience, and (4) experience-based organizing. The two variations of the language of administration were: (1) rules of teacher's work and (2) cost-efficiency. The variations of the language of pedagogical reform were: (1) child-centered pedagogy, (2) cooperative learning, (3) opening up the classroom, (4) organizing work outside the classroom, and (5) teachers' collaboration and joint responsibility. Table 7.2., below, presents the criteria for identifying the three social languages and their variations.

The main social languages and their variations	*Criteria*
1. The language of practical experience	Teachers' work as individual, classroom-centered and textbook centered. Emphasis on an individual student, not on a group of students. Talk based on teachers' feelings, everyday experience, and common sense. Talk originated "from below" , from the teachers' own concerns.
1.1. Teacher's autonomy	Emphasis: Autonomy of the teacher, control of students, lesson- and textbook-centered teaching. Words: Abundant use of "I" - the first person singular pronoun.
1.2. Us versus them	Emphasis: Us versus them in relation to others in the school. Words: Abundant use of "they" words.
1.3. Everyday experience	Emphasis: Evaluation of which solutions would work and which would not, based on the teachers' personal experience. Words :"I feel" , "we have done so before."
1.4. Experience-based organizing	Emphasis: "Organizing" talk originated "from below". Words: "We organize this issue like that."
2. The language of administration	Motivated from above. Emphasis on unifying and controlling the content of teaching, on administrative rules, and on cost-efficiency.
2.1.Rules of teachers' work	Emphasis: Timetables, division of teaching hours, supervision during lunch times and breaks, teachers' responsibility for students outside the school, and principles for advising student teachers. Words: "If something would happen, who is responsible?"
2.2. Cost-efficiency	Emphasis: Course expenses, photocopying expenses, etc. Words: "How much did it cost?"
3. The language of pedagogical reform	Emphasis: On pedagogy. The motivation of students, the possibility of student choice in what to study, students' active role in acquiring knowledge beyond the classroom, the use of varied teaching methods and materials. Teamwork of teachers, the nature of teacher collaboration.
3.1. Child-centered pedagogy	Emphasis: The motivation of students, the possibility of student choice in what to study, the idea of the child's dignity, respect for the child's own will. Words: "Students' possibility to choose", "interest", "specialization."
3.2. Cooperative learning	Emphasis: Students working in groups and the use of various teaching materials. Words: "Student groups", "purpose of groups."
3.3. Opening up the classroom	Emphasis: Students' active role in acquiring knowledge beyond the classroom, activities in which both students and teachers move outside the school. Words: "Make contacts", "make interviews", "active students."
3.4. Organizing work outside the classroom	Emphasis: The practical organization of the "opening" of the classroom. Words: "Organizing the work study", "checking the places."
3.5.Teachers' collaboration and joint responsibility	Emphasis: Work as a team and the nature of collaboration. Words: Abundant use of "we" words, "shared responsibility", "collaboration", "commitment."

Table 7.2. The criteria for identifying the three social languages and their variations

As Table 7.2. shows, I constructed certain general identification criteria for each social language. As criteria for the identification of the variations of the three social languages, I used the type of issues each variation emphasized and the typically employed in the variation words or expressions typically employed by the variation.

A concrete example illuminates the identification of topics and variations of the social languages. Turns at talk are also marked (Symbol = means speech without pause and symbol [means simultaneous speech). Key expressions are marked in bold face.

Topic 9: The role of the collaboration of teachers during the theme days

91 Pekka: I was thinking how much this will change the work, other than the use of work patterns,that is the use of **our work patterns**, because **we'**ll have to do new thinking and change our own role.
92 Anne: Mmm, sure.
[
93 Pekka: And I think it is, that if it's so that **we'**ll move more to the background to consult, then it will in a way sort of replace the old work pattern.
94 Anne: Yeah, that's very true, quite certainly our role there (pause 2 s, writes in her note pad) will change. And it's quite good it does, but that is just why it demands an awful lot of planning beforeand of **us**.=
95 Pekka: But I don't believe that when **we** do this work there's much more work at that point, it's just beforehand, planning beforehand.
96 Anne: **We** will plan beforehand=
97 Leila: =Working beforehand takes more from us.

Topic 10: How to get knowledge and material for the themes of instruction?

98 Anne: (Pause 3 seconds.) Here I will say**,** concerning this I have made a deal with **the local library** (taps her notebook with her pencil), well, they are willing to participate and **get to the students the literature** connected with the theme and all that so they're really eager.
99 Pekka: How about th Center of Culture?
100 Leila: What?

101 Pekka: What about **the Center** of Culture? When will it be finished?
102 Leila: I don't know.
103 Pekka: I'm sure we'll get a lot of **information** from there as well. (Meeting 1/1993.)

For identifying the change from Topic 9 to Topic 10, it is noteworthy that Anne used meta talk “here I will say”, and tapped her notebook to inform the team that she had made an agreement with the library to get information for the theme-working. Metatalk means talk about talk. It can be interpreted as an instrument of talk to express what the talk is about, and the rules of interaction (c, f., Engeström, R., 1995). There was also a pause of three seconds indicating a change of topic. Pekka picked up the topic by saying that the team could get information also from the Center of Culture under construction. In other words, the change of topic was often indicated by clear markers produced by the participants to signal the change to each other. Otherwise, the topic changed when a new substantial discourse topic began. Useful instruments for identifying transitions from one topic to another are also transition sentences and sequential expressions such as "well" which indicate hesitation and pauses (Brown & Yule, 1983).

I categorized Topic 9 as representing the variation "teachers' collaboration and joint responsibility" of the social language of pedagogical reform. The abundant use of "we" words and expression “our work patterns” served as markers for the use of this variation. In Topic 10, the teachers’ voices resonated with the language of pedagogical reform, specifically the variation “opening up the classroom.” The emphasis was on the students’ and teachers’ acquiring knowledge beyond the classroom, namely from the local library and the Center of Culture.

Below, I will present short excerpts from the transcripts of the planning meetings as examples of the identification of each variation of the social languages. In this context, I will also present some discussion of the theoretical and historical roots of these variations of languages.

THE LANGUAGE OF PRACTICAL EXPERIENCE

1. Teacher's autonomy

This variation of the language of practical experience emphasized the autonomy of the teacher, control of students, and lesson- and textbook-centered teaching. In other words, it emphasized the traditional temporal and spatial dimensions in a teacher's work. Many researchers have found classroom-centered and textbook-centered individual teaching very typical of teachers' work (e.g., Lortie, 1975; Lieberman & Miller, 1984; Nias, 1989; Hargreaves, 1993). As Engeström (1987, p. 101) states, the school text has become "a closed world, a dead object cut off from its living context."

The teacher's sense of autonomy in matters of curriculum and pedagogy is closely related to ideological freedom (Nias, 1989). As Malinen & Kansanen (1987) point out, in Finland, the primary school curriculum has evolved within the separate traditions of the subject-centered and the student-centered curriculums. The subject-centered tradition has been shaped by the Herbartian notion of a systematic didactic (Lehrplan). The student-centered tradition stems from Dewey (Curriculum). This has brought a split between the two traditions; teaching belongs to the field of pedagogy, while learning is studied under psychology. As Lieberman & Miller (1984) point out, no uncertainty is greater than the one that surrounds the connection between teaching and learning.

Nias (1989) found also that teachers want to become very competent as practitioners and they are selective in the help that they accept. In his study of the national discourse in Finnish schools, Simola (1996) found that, since the 1960s, the teacher has been described as a leader of an individual student's learning, not as the leader of a group of students who are learning.

In the discourse data of this study, the variation "teacher's autonomy" was characterized by abundant use of "I" - the first person singular pronoun. All clusters of the use of the first person singular pronoun were separated in the transcripts of the meetings. Below, an excerpt from team meeting 5/1993 (topic 3/16), illustrates the discourse of teacher's autonomy. The first person singular pronouns are marked in bold face letters.

Riku: ***I*** *have thought, let's see,* ***I*** *have here this kind of situation,* ***I*** *think that can't apply this new schedule for many reasons.* ***I****'ve had enough of this,* ***I*** *have thought to do this thing differently so that* ***I*** *must,* ***I*** *must teach evenly all these subjects. I can't count hours and subjects.* ***I*** *have just left out some lessons of Finnish, Mathematics and Drawing.*

Leila*:* ***I*** *have done so that* ***I*** *took that new curriculum or that new schedule in which there are three optional subjects. Or these lessons which you can choose. In other words,* ***I*** *took the minimum schedule and there were two or three extra hours left.* (5 /1993, topic 3/16)

2. Us versus them

The second variation of the language of practical experience was us versus them talk. In 1993, us versus them talk manifested itself in relation to other teams in the school, other personnel in the school, student teachers and their supervisors and, finally, in relation to the students. In 1994, it manifested itself only in relation to the students.

This variation probably originates from teachers' traditional staff room talk. Contacts with colleagues are usually informal in the setting of the staff room (e.g. Lortie, 1975; Hargreaves, 1993; Little, 1990). Little (1990) found that teachers talk with each other about what has happened in their classes, but not in a pedagogic sense. They talk about their lessons in terms of their feelings, for instance., how heavy their workload has been.

In the discourse involving us versus them talk there was abundant use of "they" words. All "they" words and also "we" words were identified in the transcripts. Below, an excerpt of the team meeting 3/1994 (topic 9/22) illustrates this discourse in relation to the students. Again, "they" words are marked in bold face.

Hanna: ***They*** *[certain students] could be put to same group, this shadow theater and ...*

Kaija: *Put* ***them*** *to either an oral expression group or a shadow theater*

Hanna: *Yes, you can combine the shadow theater with the oral expression group.*

Mervi: ***They*** *don't even understand if you put them there.* (3/1994, topic 9/22)

3. Everyday experience

This variation of the language of practical experience emphasized such expressions as "I feel" and "we have done so before." This variation drew upon everyday experience and common sense. Teachers used this variation when they talked about how they had solved problems before in the classroom. Also they often evaluated which solutions would work and which would not, based on their personal experience.

In their daily work both in the classroom and staffroom teachers rely on their practical rather than theoritical knowledge (e.g., Lortie, 1975; Feiman-Nemser & Floden, 1986). Jackson (1968) characterized teacher's use of language as "conceptual simplicity." Lortie (1975) found that teachers did not use pedagogical concepts in their speech. Denscombe (1982) talked about an implicit theory of teaching which contains experiential rules about how to manage and control the teaching situation.

Below, an excerpt of the team meeting of 9/1993 (topic 5/18) provides an example of “everyday experience” talk. Key expressions (e.g., I feel) are marked in bold face.

Leila: *Hey, we must talk about this thing.* ***If I have understood right*** *they are hopeless,* ***I feel that*** *last Thursday they thought, yes, this school building is ours and now we are going to rush about.*

Liisa: ***I noticed that*** *when it was over, and the students came to our classroom, and my group was not ready, and my own students were still in full swing.* ***I felt*** *like this place is no longer a school.* (9/1993, topic 5/18)

4. Experience-based organizing

Experience-based organizing was identified as a variation separate from the language of administration (see the next section). This talk originated "from below" in that the teachers expressed their own concerns (e.g., "we organize this issue like this"). Administrative language, on the other hand, was motivated from above. Below, an

excerpt from team meeting 2/1993 (topic 11/22) illustrates this experience-based organizing concerning schedules. The key expression is marked in bold face.

Riku: *Well, what we stated here with Leila, about the number of lessons concerning us, we said with Leila that* ***whatever stands in the paper, we have had our own distribution of lessons in practice,*** *that is, the lesson distribution is not, and then who, who, or cross your hearts, who has counted the lessons so far?*

Leila: *You mean, should we have exactly the given amount of Finnish.* (2/1993, topic 11/22)

THE LANGUAGE OF ADMINISTRATION

1. Rules of teacher's work

This variation of the language of administration emphasized rules of teaching including such issues as timetables, division of teaching hours, supervision during lunch times and breaks, teachers' responsibility for students outside of school, and principles in advising student teachers. This talk was defined as administrative because it was motivated from above. For example, the teachers discussed issues related to timetables as administrative rules, not as resources in organizing teaching.

Curriculum theories and procedures have been important general instruments in unifying and controlling the content of teaching (see e.g., Kliebard, 1986). During the late 1960s and early 1970s, rationalization-oriented "teacher effectiveness" research became prominent (Prawat, 1992). In Finland, the psychological basis for the tayloristic curriculum was supplied by behaviourism (Miettinen, 1998a). Curricula were centrally prepared and the schools were supposed to implement them. The rationalized control and power of standardized textbooks made the planning of school work technical (Apple, 1986).

Below, an excerpt of team meeting 10/1993 (topic 3/6) illustrates a discussion about teachers' responsibilities outside of the classroom. In this discourse, the conflict between teachers' common sense and official rules can be identified. The teachers collided with the rule that teachers must be responsible for their students outside the school during the

school day while they also are responsible for the students inside the classroom. The key expression is marked in bold face.

Anne: *Yes, Ilta [leader of student teachers] has said that, of course the teacher must go with the students.*

Leila: *Well, you must, I mean* ***if something would happen it is your responsibility then.***

Riku: *Come on! This can't function like this. I definitely don't agree with this.=*

Anne: *=Yes, but it is judicially so. You can't do anything although you don't agree. This is the truth.* (10 /1993, topic 3/6)

2. Cost-efficiency

Cost-efficiency talk in 1994 could be depicted as a modern version of the language of administration. In 1993, the teachers talked about costs only twice, when they discussed photocopying expenses. In 1994, when evaluating the elective courses, the teachers systematically asked each other how much each elective course had cost.

In Finland, the 1990s have been a time of economic depression and this has led to pressures toward cost-efficiency in schools. Researchers have asked what cost-efficiency thinking means in schools (e.g., Halinen, 1995) and have concluded that it only strengthens the stronghold of rationalization on teaching work. On the other hand, one could argue that consciousness of costs in planning may enable teachers to take over some of the managerial power traditionally stationed above them.

Below, an excerpt of team meeting 5/1993 (topic 3/16) provides an example of a discussion about the costs of copying in 1993.

Leila: *That it is not a problem. Then I think we'll go [takes the sheet in her hand] I think this sheet is terribly good, terribly clear and* ***I was thinking about these copying costs, that could this be shortened into one page.*** [laughs briefly]

Anne: [takes the sheet in her hand] *Yes, of course it could.* (5/1993, topic 3/16)

THE LANGUAGE OF PEDAGOGICAL REFORM

It is noteworthy, that the school under study has a reform-pedagogical history that influence having come from the experimental school of Mikael Soininen.

1. Child-centered Pedagogy

The child-centered pedagogy has a long tradition beginning in 1762 with Rousseau's *Emile*. The twentieth century was called the century of the child, inspired by Ellen Key's well-known book published in 1900. In the teams I studied, this variation of reform-pedagogical language emphasized the motivation of students, the possibility of student choice in what to study, and the use of varied teaching methods. Also included in this variation were the idea of the child's dignity, and respect for the child's own will. Dearden (1968) points out that child-centered pedagogy means that teachers justify their teaching by referring to the child's needs, interests and growth. According to Woodhead (1987), the emphasis on the child's needs aims at bringing out the best in the child, and if this does not come true, it causes feelings of guilt for the teachers.

Researchers (e.g., Berlak & Berlak, 1981) have perceived different variations within the child-centered pedagogy. These are, for example, the romantic liberty pedagogy, which emphasizes respect for children, and the social pedagogy, which emphasizes socialization and cooperation among children. Darling (1994, p. 25) distinguishes between the radical child-centered pedagogical trend stemming from Rousseau and the trend which emphasizes the relationship between school and society, stemming from Dewey.

Below, an excerpt of team meeting 4/1993 (topic 5/5) demonstrates the discourse of child-centered pedagogy. This excerpt illustrates the romantic child-centered pedagogy as defined by Darling (1994). Key expressions are marked in bold face. Anne used reported speech when she talked about what Pamela (member of another team of the school) had said. Reported speech can be regarded as a message belonging to someone else (Volosinov, 1973). Pamela's voice was heard via ventriloquation (Bakhtin, 1982) without her presence in the meeting.

Leila: *Well, it doesn't necessarily work. One absolute starting point in here has been the fact that* ***this [theme-working] will enhance the students' possibility to choose.*** *I mean* ***they can direct their interest and specialize according to their own wishes*** *and also partly according to their teachers' recommendations, if these want, or don't want, to guide the students. But their idea [that of another team in the school] is different and they work on a different basis.*

Anne: *=But on the other hand Pamela [the teacher of another team] said a moment ago that she can drop lessons, that now students have a change to choose, that the students can do what they want, but it is not true anyway. She can't say it like that. I did not seize on her words but it rang in my ears. I thought that ...* (4/1993, topic 5/5)

2. Cooperative learning

The variation of cooperative learning emphasized students working in groups and the use of various teaching materials. While an integral part of the Deweyan tradition of pedagogical reform, students' collaborative learning has in recent years become a virtual movement in itself (e.g., Johnson & Johnson, 1989; Rojas-Drummond, Hernandez, Vélez & Villagran, 1998; Slavin, 1987). Below, an excerpt of team meeting 4/1994 (topic 1/8) provides an example of discourse of cooperative learning. Key expression are marked in bold face.

Anne: *Well,* ***what was the purpose of this group****, I mean, was it done* ***as group work****?*

Saku: ***The idea of learning*** *was that they firstly formulated what their group was like.*

Kaija: *Yes*.

Saku: *The composition of groups such as electing its chairman, and they also gave the name for the town they were going to build.* (4/1994, topic 1/8)

3. Opening up the classroom

The variation of opening up the classroom emphasized students' active role in acquiring knowledge beyond the confines of the classroom. In my data, this variation of the language of pedagogical reform emphasized activities in which both students and teachers moved outside of the class and school. Again, this is a key element in the Deweyan tradition, which has gained new momentum recently with the

theories of situated learning (Lave & Wenger, 1991) and alliances between school and the outside world (e.g., Graham, 1992, Lieberman & McLaughlin, 1992, Moll & Greenberg, 1990, see also Garrison, 1995, for the connection to Dewey).

Below, an excerpt of team meeting 2/1993 (topic 20/22) illustrates the variation opening up the classroom. In the excerpt, Pekka points out that students in the botany group could themselves contact, for example, the parks department of the town. Key expression is marked in bold face.

Anne: *But Pekka, what have you thought, could you start from here* [pointsat papers in front of Pekka]?
Pekka: *I have thought that in this theme and also in other themes [points at a paper in front of him]* ***I will throw the ball to the children so that they would be in contact themselves as much as possible with what's outside the school****. I thought last night that they could also call the park department.* (2 /1993, topic 20/22)

4. Organizing work outside the classroom

The variation of organizing work outside the classroom appeared in 1993 when the teachers discussed organizing the work pedagogy group and researching possible job training sites. They discussed these issues quite often since they were as a team jointly responsible for the work pedagogy group. They identified training sites both in the school and in its vicinity. In 1994, the variation of organizing work outside the classroom appeared only when the teachers organized an elective course at an old people's home. Instead of just the *pedagogical idea* of 'opening up the classroom' discussed above, 'organizing work outside the classroom' consists of talk on the *practical organizing* of such work.

Below, an excerpt of team meeting 11/1993 (topic 5/17) provides an example of the discussion on work training sites.

Riku: *Well, these work practice sites,* ***we must check them again****, I had already forgotten them.*
Pekka: *Have you asked Taimi about it [worker of the parish]?*
(11 /1993, topic 5/17)

5. Teachers' collaboration and joint responsibility

The variation of teachers' collaboration and joint responsibility appeared when the teachers talked about their work as a team and about the nature of collaboration inside the team. In 1993, the team was at the beginning of its life-span and the teachers talked often about the nature of their collaboration. The team of 1994 was also new, but this team did not discuss the nature of its collaboration.

The idea of team teaching in schools was first introduced in the United States in the 1960s (e.g., Beggs, 1964), and it spread quickly in Europe as a promising educational innovation. However, team teaching all but faded away from educational literature in the late 1970s and 1980s. It is only quite recently that the notion of teams as an organizing principle for the work of teachers has reappeared (Maeroff, 1993). Shedd et al. (1991) and Little et al. (1993) point out that the recently revived interest in founding teacher teams is related to attempts to remove hierarchical, bureaucratic structures of administration and to involve teachers in collaborative management of their schools.

Little (1990), and Little & McLauglin (1993) outlines four different descriptions of collegiality among teachers. They point out a tension between teachers' autonomy and individuality, on the one hand, and collective attempts, on the other. The first form of collegiality involves teachers discussing various teaching matters but proceeding to teach independently. The second involves aid and assistance; teachers ask each other questions and offer help upon request while the independent nature of teaching is preserved. The third form of collegiality involves teachers sharing materials and ideas, expanding their resources for teaching but often guarding their individual teaching reputations. The fourth level is defined as joint work. It includes collective conceptions of autonomy, support for teachers' initiatives and leadership with regard to professional practice.

In the 1993 team, a certain tension between teachers' autonomy and joint responsibility can be identified when the teachers discuss the nature of their teamwork. Notice the use of “we “ and “committed” words. This is seen in the following excerpt from team meeting 2/1993 (topic 12/22).

Leila: *Yes. I wrote on purpose responsibility and freedom, in this order and not vice versa. Expressly so that* ***we*** *are already* ***committed*** *to this from the beginning, I suppose, at least to some extent. First,* ***we have this common responsibility for this theme.***

Anne: *Yes.* (2/1993, topic 12/22)

SEEDS OF NEW LANGUAGE VARIATIONS IN 1993 AND 1994

I will now turn to the topics of the teachers' planning discourse that fell outside the general frame of the three social languages and their variations characterized above. Such sequences of discourse may be seen as seeds of potential new languages. They are important because they may indicate and form initiations toward new models of thinking or work practices (Ritva Engeström, 1995). On the other hand, one must interpret these topics with extra caution for the very reason that they are emergent and not easily classifiable. Their numbers are typically small and it may not be possible to identify stable characteristics that enable the researcher to identify them with certainty. Below, short excerpts from the transcripts are presented to demonstrate these seeds of potential new languages. A preliminary theoretical interpretation of these new seeds is also presented.

In 1993

In the transcripts of the teacher team meetings from 1993, there were eleven topics which were exceptional in the sense of not being placeable within any variations of the three social languages discussed above. Very often these topics contained questioning of the pedagogy of the teams. When these eleven topics were examined more closely, seeds of three potential new variations were tentatively identified. These were: (1) teachers' and students' joint planning of instruction; (2) evaluation of students' learning in collaboration between students, teachers and parents, and (3) teachers' critique of the ideology of student motivation and choice.

1. Teachers' and students' joint planning of instruction

Talk about the teachers' and students' joint planning of teaching appeared in one occasion during the planning process of 1993. Below,

an excerpt from team meeting 2 (topic 7/22) provides an example of this discourse. Key expressions are marked in bold face.

Pekka: *Have you been thinking about it, such alternative that if these students themselves choose the groups they go to,* ***they will also be planning the activity of the group?***

Anne: *Well, we had this in these very first plans that we made, let me see we had [reads in her notebook] that the themes would be known at the beginning of the term or the school year, so that the students are aware of what we are doing, and they could have a say also beforehand.*

Pekka: *That's a different thing.*

Leila: *You mean in the form of* ***joint planning****?* (2/1993, topic 7/22)

Pekka, who was a new teacher in the team, raised this subject. Pekka had implemented joint planning of instruction in the previous year in another school, when he had taken part in a Greenpeace project called "Green Kids".

Teachers' planning together with students was discussed and to some extent implemented as part of the wave of reforms in the Finnish school system in the 1970s and early 1980s (Lehtinen, 1984). This effort was termed "joint planning of teaching". The goal was to apply the ideas of progressive education and democratic participation in the Finnish school system. However, this effort weakened toward the end of the 1980s.

2. Evaluation of students' learning in collaboration between students, teachers and parents

This kind of talk appeared only once in the team meetings of 1993. It was difficult to place this talk within any social language because in this topic the teachers discussed how they could enhance cooperation with parents. The viewpoint of parents was raised only once in the planning process of 1993. The topic is presented in the excerpt below (meeting 11/1993, topic 9/17). Key expressions are marked in bold face.

Anne: *Could this be that,* ***what I [students] made, learned during this period****, in a way.*

Pekka: *Good, 'made' is more concrete.*

Anne: *You mean, because particularly the small kids, well, it could be a dash [draws a dash on paper] here, because they understand it better than what they have made.* ***But the parents should also see from there*** *what the child has liked and what he or she has not.*

Riku: *Yes, but just what you said, the wider feedback you get, I think we'll get it best by going through and through this thing in the class with students, and clear it.*

Leila: *But in that sense I'd think it would be good to have something to take home, because this first period is coming to an end and* ***at least I haven't got any feedback whatsoever from the parents, no questions, neither this nor that****, nothing at all, so could we have something here that the parents would have to show that much interest in that they would read it and have a look.* (11/1993, topic 9/17)

This seed of a potential new language variation resonates with recent literature on improving schools through the collaboration of teachers and parents (Hughes, 1994; Hendry, 1994; Barth, 1990). In this literature, the evaluation of students' learning in collaboration between teachers, parents and student themselves, often using non-traditional methods such as portfolios, is understood as a central part of the learning process.

3. Critique of the ideology of student motivation and choice

This talk differed from the first two types of seeds in that it originated from a critique of the child-centered pedagogy emphasizing the possibility of choice and the motivation of students. These topics also included certain identifiable tensions. In 1993, this critique of the pedagogy which the team itself tried to implement was clearly predominant among the seeds of potential new languages. There were nine topics in which the teachers evaluated their implementation of the Local Community theme and noted that the students had not been motivated or had not been mature enough to choose from among different possibilities.

An excerpt from team meeting 9/1993 (topic 1/18) provides an example of the teachers' evaluation of their implementation of the theme. Key expressions are marked in bold face.

Riku: *Then* ***they didn't seize on*** *those things that I had imagined they would seize upon,*

and then I sort of faced the situation that for instance something (...) I can't remember the names of the students, but what it was kind of scribbling, they planned, played with the paper and scribbled there and it doesn't serve the purpose, and now we have no new baits to throw in tomorrow, like hey, would you like to do this or that -

Pekka: *Which means you had it too much on the side of the concrete? I, for my part, had the problem, what I felt was a problem that the thing went out that moment,* ***it went to the abstract with many of the students.*** (9/1993, topic 1/18)

Above, Riku pointed out that his students could not make choices although he had tried to offer different options. Pekka in turn stated that his students had difficulties in understanding the idea of theme. The critique of the ideology of student motivation and possibility of choice included a tension between the assumed motivation and ability of students to make choices on the one hand, and the responsibility of the teachers to tutor students to work and learn productively, on the other hand.

Later in the same meeting Riku stated that the question was not only about motivation of the students but also about how to guide the children with learning difficulties.

Is this kind of critique a seed of a new language or simply negation of an old social language? Is this kind negation and critique talk just talk about disappointment? Or does, perhaps, the emergence of a new social language does require some kind of negation? On the other hand, negation can also lead to regression and to a return to old work practices.

The topics presented above did not consist only of talk of disappointment and pure negation. One may also identify developmental possibilities in these topics. The teachers began to talk about how to facilitate students' learning. The self-criticism of the ideology of student motivation and choice made it possible for the teachers to find new seeds of a pedagogy which emphasizes students' learning, not only their possibility to choose. An excerpt from the same team meeting (9/1993, topic 3/18) illustrates this.

Leila: *For example, I became aware of a few students only last time, and I realized that* ***I should have started to give advice and help them***

from the very beginning, and those kids have their own requirements and expectations about what will become of their work *and then, if a situation arises, that they can't do it, or like they can't manage to get it done, or they are very unsatisfied, then I think it's the worst situation of all.*

Anne: *Exactly this information, what Leila just said. Are you writing it down, Leila?*

Leila: *Yeah, good.=*

Anne: *=That* ***individually for each student, that the difficulties for this child are these and these*** [looks at each team member in turn]. (9/1993, topic 3/18)

Above, Leila raised the question that the teachers should take notice of the students' own needs and expectations concerning their work and learning. Anne brought up that the teachers should in future team meetings discuss the students' learning difficulties more concretely. Notice that she stressed the importance of writing down this idea.

Historically, this kind of self-reflective talk seems to be new among teachers. The teachers in the team had the opportunity to evaluate their teaching together in their meetings. This new practice, regular team meetings of the teachers, made possible the emergence of self-critique.

In recent years, a number of studies on teachers as reflective practitioners and knowledge producers have appeared (e.g., Giroux, 1988; Goodson, 1994, Mitchell, 1996; Schön, 1987). The emergence of self-critical talk in my 1993 data seems to match this trend in the literature toward teachers' self-reflection. Giroux (1988, 125-128) talks about teachers as "transformative intellectuals." Teachers have to ask what they teach, how they teach, and how they are to teach. Goodson (1994) stresses the importance of the appearance of teachers' own voices to develop their own pedagogy from below.

In1994

In 1994, there were six topics that could not be placed within any variations of the social languages. Upon further examination of these topics, two potential new variations were identified: (1) integrating the elective courses, and (2) critique of the practice of organizing student group work.

1. Integrating the elective courses

This type of talk appeared both while the teachers were planning the elective courses and while they were evaluating them. Three topics were found in which the teachers discussed this issue. Anne, who was a member of the previous year's team, suggested in the first team meeting that the separate elective courses could be used in the school's Opera production. In spring 1995, the school would execute a production titled 'We built a town' in collaboration with the National Opera. Anne's suggestion was not realized in practice. In the second team meeting, Anne also suggested that the teachers could collect the outcomes within every course and present them , for example, in an exhibition or common presentation. The tension here was whether to implement only the separate elective courses or to bring them together at the end of the period. This suggestion did not materialize in practice either.

In the evaluation meeting, the teachers discussed the idea of connecting the coming elective courses period with the Opera project. An excerpt from team meeting 4/1994 (topic 8/8) provides an example of this discussion. Riku, who was a member of the school's Opera group, took up the issue that the elective courses team and the Opera group should communicate with each other and plan together the contents of the coming elective courses period. Key expression is marked in bold face.

Anne: = *But then on the other hand, on the other hand it [realizing the elective courses connected with the Opera Project] might be started from the very beginning, let's say that we could ourselves select for instance all the fabrics that we use, I mean we do it from the beginning, and it should be =*

Riku: *What I mean is, this is just what I mean that* ***the other group, the one that is doing the elective courses, and the opera group, they negotiate with the Opera****, and it is only there we'll know, what we sort of must have.* (4/1994, topic 8/8)

2. Critique on the practice of organizing student group work

This variation of talk originated from the critique on the practice of dividing students into groups and organizing group work. This talk, much like the critique talk in 1993, appeared as self-criticism an account of the pedagogy the team had implemented. There were three

topics in which the teachers discussed problems encountered in implementing the student group work.

Kaija had organized her "Making a scale model" elective course based on principles of cooperative learning. However, the groups within the course had been too large. Anne took up the problem of large hierarchical groups. Maija asked why all ten boys wanted to be in the same group. An excerpt from team meeting 4/1994 (topic 3/8) provides an example of this discussion. Key expressions are marked in bold face.

Maija: ***I wonder why they wanted to be in one and the same group?*** *Surely they didn't quite understand what it means if you have ten students in the same group.*

Kaija: *They did understand it while working that.=*

Maija*: =Hmm. Hmm.*

Kaija: *That it doesn't quite, but I don't know, I kind of feel* ***they did not have very good motivation*** *to do the scale model thing in itself, that there were some, well, freeloaders, there were the ones who had ideas and these (...) then these, not so, not so.* (4/1994, topic 3/8)

According to Kaija, the boys were not motivated in making a scale model, seemingly as a consequence of too large groups. Maija suggested that such large groups should not be used in the future. However, this discussion on group work did not lead into a more in-depth critical examination of the pedagogy used by the team members. Compared to previous year, the critique talk was more diffuse in 1994.

PREVALENCE OF SOCIAL LANGUAGES IN THE MEETINGS OF 1993 AND 1994

As stated previously, the transcripts of the meetings recorded in 1993 and 1994 were divided into topics. The meetings of 1993 comprised 149 topics and the meetings of 1994 a total of 62 topics. The talk within topics was further divided into occurrences of variations of social languages. By calculating the numbers of occurrences , the relative weights of languages and their variations used in each meeting were established. By occurrence I mean the count of how many times a certain variation of language was identified within each episode occurred in each meeting. During both years, it was possible to identify within each episode, in the average, two variations. Table 7.3. shows

the data from the 1993 meetings: there were a total of 149 episodes and a total of 297 occurrences of variations of languages. Table 7.4. shows that there were a total of 62 episodes and 107 occurrences of variations of languages in the 1994 meetings.

In 1993, the planning process consisted of three phases. The first four meetings can be described as the idea phase of the theme-working model. The second phase (meetings 5 to 7) may be defined as making a plan for the Local Community theme. The third phase consisted of the implementation and evaluation of the Local Community theme.

Table 7.3. expresses the frequency of occurrences of each variation counted within each topic in each of the meetings (M) as well as in all the meetings.

1993		IDEA OF MODEL				PLAN			IMPLEMENTATION AND EVALUATION					
Meetings		1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
I PRACTICAL EXPERIENCE														
1.Teacher's autonomy	(f)	5	4	0	0	2	2	0	0	0	0	0	2	15
2. Us versus them	(f)	0	1	1	0	0	1	0	1	1	1	1	0	7
3.Everyday experience	(f)	7	5	6	4	15	5	6	2	15	4	11	6	86
4. Experience-based organizing	(f)	0	3	2	0	2	3	5	2	0	2	5	2	26
Total (practical	(f)	12	13	9	4	19	11	11	5	16	7	17	10	134
experience)	(%)	46	27	25	37	58	50	50	71	49	54	57	63	45
II ADMINISTRATION														
1. Rules in teachers' work	(f)	2	4	6	2	1	1	1	0	1	3	0	2	23
2. Cost-efficiency	(f)	0	0	0	0	2	0	0	0	0	0	0	0	2
Total	(f)	2	4	6	2	3	1	1	O	1	3	0	2	25
(administration)	(%)	8	8	17	18	9	4	4	0	3	23	0	12	8
III PEDAGOGICAL REFORM														
1.Child-centered pedagogy	(f)	4	8	5	3	1	2	1	0	3	0	0	0	27
2.Students' cooperative learning	(f)	1	10	9	1	6	2	2	1	3	1	7	1	44
3.Opening up the classroom	(f)	0	4	0	0	2	1	1	0	0	0	1	0	9
4.Organizing the work outside the classroom	(f)	0	1	0	0	2	1	5	1	4	1	1	0	14
5.Teachers' collaboration	(f)	7	8	7	1	2	4	1	0	1	1	1	0	33
Total	(f)	12	29	21	5	11	10	10	2	12	3	10	1	127
(pedagogical reform)	(%)	46	63	58	45	33	46	46	29	36	23	33	7	43
IV NEW SEEDS														
New seeds	(f)	0	1	0	0	0	0	0	0	4	0	3	3	11
	(%)		2							12		10	18	4
TOTAl	(f)	26	49	36	11	33	22	22	7	32	13	30	16	297
	(%)	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 7.3. The prevalence of the languages during the planning process of 1993

During the planning process of 1993, the nature of the language of practical experience changed. The variation “everyday experience” dominated within this social language, particularly in the planning phase and in the implementation and evaluation phase. The variation “teacher's autonomy” was used actively in the first two meetings of the ideation phase, but declined in the planning phase and in the implementation and evaluation phase. Talk within the language of administration fell almost entirely into the variation “rules in teachers' work”.

Within the language of pedagogical reform, the variation “students' cooperative learning” was actively used in the ideation phase and early in the planning phase, and again in one meeting toward the end of the implementation and evaluation phase. The variation “child-centered pedagogy” was actively used when the teachers planned the theme model, but it was nearly absent from the planning, implementing and evaluating of the Local Community theme. The variation “teachers' collaboration and joint responsibility” was also mainly used during the ideation phase, to decline and all but diminish toward the end of the implementation and evaluation phase. Talk indicating seeds of new language variations occurred almost exclusively in the implementation and evaluation phase of the planning process. Findings concerning the use of each language in 1993 are summarized in Figure 7.1.

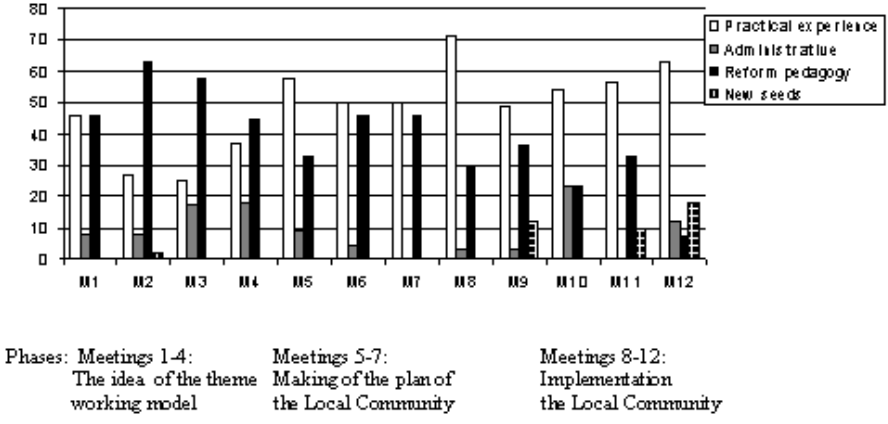


Figure 7.1. The use of social languages in the meetings of 1993

The use of the three broad social languages and seeds of new language variations took different shapes as the planning process proceeded. In the ideation phase, the language of pedagogical reform was used more than any other language, while the language of practical experience began to dominate during both the planning phase and the implementation and evaluation phase. Overall, there was an upward trend in the relative use of the language of practical experience, and a downward trend in the relative use of the language of pedagogical reform. It seems plausible that theoretical and ideological discourse plays a more prominent role in the early phases of planning, while practical experience begins to dominate as the planning moves toward implementation.

The use of the language of administration reached its high points first early in the ideation phase of the theme model, and again late in the evaluation phase, in meeting 10 during the implementation of the Local Community theme. Finally, seeds of new language variations appeared mostly during the evaluation phase, in the last four meetings, as if through critical self-reflection and questioning of the pedagogy implemented.

In 1994, the planning process consisted of two phases. The first three meetings can be described as making a plan for the elective courses. The second phase (meeting 4) consisted of evaluating the elective courses. The team had no meetings during the implementation of the elective courses. Table 7.4. indicates the frequency of occurrences of each variation measured within each topic in each of the meetings (M) as well as in all the meetings.

1994		**PLANNING**			**EVALUA-TION**	
Meetings		1	2	3	4	Total
I VARIATIONS: PRACTICAL EXPERIENCE						
1.Teacher's autonomy	(f)	8	3	3	1	15
2. Us versus them	(f)	0	0	1	2	3
3.Everyday experience	(f)	7	8	5	6	26
4. Experience-based organizing	(f)	4	5	18	0	27
Total	(f)	19	16	27	9	71
	(%)	59	80	82	41	67
II VARIATIONS: ADMINISTRATION						
1. Rules in teachers' work	(f)	0	0	0	0	0
2. Cost-efficiency	(f)	0	0	0	4	4
Total	(f)	0	0	0	4	4
	(%)	0	0	0	18	3
III VARIATIONS: PEDAGOGICAL REFORM						
1.Child-centeredpedagogy	(f)	0	0	2	1	3
2.Students' cooperative learning	(f)	6	0	0	2	8
3.Opening up the classroom	(f)	1	1	1	1	4
4.Organizing the work outside the classroom	(f)	3	1	0	1	5
5.Teachers' collaboration and joint responsibility	(f)	2	1	3	0	6
Total	(f)	12	3	6	5	26
	(%)	38	12	18	23	24
IV NEW SEEDS						
New seeds	(f)	1	1	0	4	6
	(%)	3	5	0	18	6
TOTAL	(f)	32	20	33	22	107
	(%)	100	100	100	100	100

Table 7.4. The prevalence of the languages during the planning process of 1994

In 1994, within the language of practical experience, the variations of everyday experience and experience-based organizing dominated throughout the process. The variation of teacher autonomy was actively used in the first meeting of the planning phase of the elective courses. The variation of us versus them appeared in the last two meetings. The language of administration was totally absent during the planning phase of the elective courses, to appear only in the last evaluation meeting in the cost-efficiency variation. Rules of teachers' work were not discussed at all in 1994.

Within the language of pedagogical reform, talk categorized in the variation of students' cooperative learning was used quite frequently in the first planning meeting. In the final evaluation meeting, there was a marked increase of seeds of new language variations.

Findings concerning the use of the social languages and their variations in 1994 are summarized in Figure 7.2.

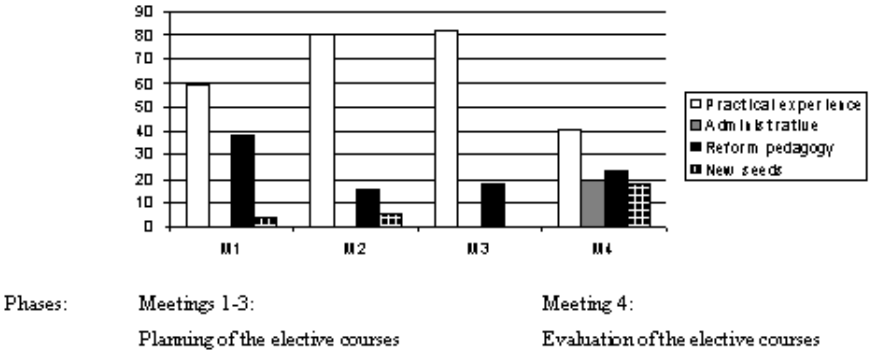


Figure7.2. The use of social languages in 1994

The use of each of the three languages and seeds of new language variations took different shapes during the planning process in 1994. The language of practical experience dominated through the whole

process, although its share of the overall talk was sharply reduced in the last meeting devoted to evaluation. The share of the language of pedagogical reform was reasonably large in the first planning meeting, though not nearly so dominant as in 1993. Interestingly enough, the language of administration appeared only in the last evaluation meeting, together with a marked increase in the share of seeds of new language variations.

Before returning to an interpretation of these findings, I will briefly present a set of complementary findings on the use of the words "I", "we", and "they" in the planning meetings.

THE USE OF 'I', 'WE', AND 'THEY' WORDS IN TEAM MEETINGS IN 1993 AND 1994

As shown above, there was abundant use of the word "I" in the "teacher autonomy" talk within the social language of practical experience. "We" words, on the other hand, were largely connected to "teachers' collaboration and joint work" talk within the language of pedagogical reform. There was also frequent use of "they" and "we" words in "us versus them" talk within the language of practical experience.

To gain a clear sense of the relative predominance of the "I" words, "we" words, and "they" words, all these words were counted for all of the meetings in 1993 and 1994. The findings are shown in Table 7.5.

I-talk versus we-talk	Meetings in 1993	Meetings in 1994
"I" words	1877 (49%)	405 (82%
"We" words	1963 (51%)	90 (18%)
Total	3480 (100%)	495 (100%)

Us versus them talk	1993	1994
"They" words	844 (30%)	267 (75%)
"We" words	1963 (70%)	90 (25%)
Total	2807 (100%)	357 (100%)

Table 7.5. The frequency and percentage of 'I', 'we' and 'they' words in the teacher team discourse in 1993 and 1994

In 1993 , the "I" words and "we" words were just about equal in occurrence. In 1994, a very different picture emerged. A basic feature in the teachers' talk was the prevalence of the "I" words, covering 82 percent of the total amount of these two types of words, against a mere 18 percent covered by the "we" words.

In 1993, "they" words represented 30 percent and "we" words 70 percent of the total of these two types of words. In 1994, the situation was reversed: "we" words represented only 25 percent and "they" words 75 percent of the total. The use of "they" words was found mainly in talk about students and, to lesser degrees, in talk about student teachers, about teachers outside the team, and about other personnel in the school.

INTERPRETATION OF THE FINDINGS

This chapter has explored how the quality of discourse - the use of social languages - changed during the change in the organization of teachers' collaboration within a school. There are five central sets of

findings. In the following, I will briefly summarize these findings and interpret their significance for my research question.

1. *The nature and role of the language of pedagogical reform changed between and within the planning processes.* In particular, the ideologically and theoretically foundational variation of "child-centered pedagogy" was used actively in the idea phase of the Local Community theme in 1993, but declined after that. However, the new seeds characterized as "critique of the ideology of student motivation and choice", found in the evaluation phase in 1993, may be regarded as an attempt at reconceptualizing the idea of "child-centered pedagogy" through self-criticism and questioning of the idea of students' motivation and free choice.

In 1994, the variation "child-centered pedagogy" played a negligible role, being the weakest variation of the language of pedagogical reform. In fact, the entire language of pedagogical reform had a much weaker role in 1994 than in 1993 (24 percent compared to 43 percent of the total of number of occurrences of language variations).

This change in the use of the language of pedagogical reform between the two years seems to be directly related to the fact that in 1994 the team did not discuss the pedagogical idea of elective courses or their pedagogy in general during the planning process. The planning meetings were mostly devoted to practical issues of organizing the courses. Only in the evaluation meeting the team discussed problems encountered in implementing student group work.

2. *The language of administration was used in 1993 but was nearly absent in 1994.* In 1993, during the idea phase of the planning process, the teachers' talk frequently focused on administrative rules such as timetable issues and division of lessons. During the second planning trajectory, this talk was absent. Only cost-efficiency was touched upon in the evaluation phase.

At a first glance, this finding seems to contradict the first finding discussed above: why would there be more talk about administrative rules in 1993, if that year's process was characterized by more emphasis on pedagogical principles? Earlier, it was pointed out that the teams' assignments and tasks were different in 1993 and 1994. The team of 1993 was founded on the initiative of the teachers themselves.

Externally given rules for the collaboration of teachers did not yet exist in the school. They needed to be worked out in the team. In 1994, the whole school was restructured into teams. This expansion was accompanied by new administratively given rules for the whole school. There was no need for the team to discuss or negotiate the rules, especially since the task of the team in 1994 did not require joint construction of a shared overarching theme for the various elective courses.

3. *The language of practical experience dominated in 1994.* In 1993, 45 percent of the occurrences of language variations in teachers' talk represented the language of practical experience; in I994, 67 percent of the occurrences represented this language. In 1993, the language of practical experience began to dominate during both the planning phase and the implementation phase of the Local Community theme. In 1994 this language dominated even though the team had no meetings during the implementation of the elective courses.

The increase seems to be related to the organizational change of the teachers' collaboration in the school. The elective courses, in 1994, had no common, shared theme. All eight teachers planned their courses by themselves. Team meetings were mainly used to discuss practical arrangements. There was little need for ideological and theoretical discussion. The interconnection between the administrative and social organization of the team (a pedagogically oriented team initiated from below in 1993 and a school-wide, administratively implemented structure of task-force teams in 1994), the character of its object (shared Local Community theme in 1994 and fragmented elective courses in 1994), and the ensuing character of the social languages used in the discourse, seem to constitute the crucial insight gained in this analysis.

4. *Both in 1993 and 1994, seeds of new language variations appeared mainly in the evaluation phase of the planning.* In 1993,and to a lesser degree in 1994, self-criticism talk seemed to open up new possibilities for the teachers to develop their own pedagogy.

The seeds of new languages were important since they reflected new emerging thinking models and working practices of the studied teams. In 1993, this critique of the pedagogy which the team itself had tried to implement was clearly predominant among the seeds of potential new languages. The topics containing seeds of new languages included

certain identifiable tensions such as a tension between the assumed motivation and ability of students to make choices and the responsibility of the teachers to tutor students to work and learn productively. This seems to be a variation of a very basic inner contradiction within the ideology of progressive education, analyzed by Billig and his colleagues (Billig et al. , 1988). As developmental activity, the teachers began to emphasize students' learning and students' own needs and expectations, not only their possibility to choose.

In 1994, the self-criticism talk originated from the critique of the practice of dividing students into groups and organizing group work. This critique talk was more diffuse in 1994 if compared to previous year, and , thus, the discussion on group work did not lead into a more in-depth critical examination of the pedagogy used by the team members.

Historically, such evaluation meetings were new to the teachers. For the first time, it was possible for them to reflect critically with each other on their practices within the theme unit or the elective courses which they had implemented. Importantly enough, the evaluation session and the self-critical talk reappeared also in 1994, despite the organizational change that had been implemented administratively.

5. The ratio of "I" words to "we" words increased radically in 1994; a similar increase was observed in the ratio of "they" words to "we" words. These increases seem to be related to the increasing share of the language of practical experience in 1994, as compared to 1993. In the language of practical experience, particularly the variation of everyday experience was saturated by a heavy use of the "I" words. More generally, the increase of the "I" and "they" words seems again to be associated with the changed object and task of the team in 1994. Since the team did not attempt to construct a shared theme, there was little incentive to develop a shared "we" identity. In this light, the increasing share of "they" words was probably more an indirect consequence of the weakened relevance of "we" words rather than a direct manifestation of an increasing emphasis on "them" as outsiders of the team. This interpretation is supported by the fact that there was no increase in the share of the variation of “us versus them” in 1994.

In Chapter 1, I posed the research problem as "how the contents of planning the collective curriculum units in the teacher teams' discourse changed as the organization of the teachers' collaboration patterns was changed?" The findings show significant changes in the nature of the teams' discourse. As an instrument of collaboration, the talk of the teacher teams reflected the change in the organization of the teachers' collaboration: from a singular tightly knit and pedagogically oriented team having initiated from below to a school-wide, administratively implemented structure of loose teams coordinating the elective courses.

Talk as a medium of planning and reflection is not unidirectional or mechanical. As the findings show, the teachers constructed their situations, identities and organizational arrangements locally through talk. For instance, in the team of 1993, there were no externally given rules for the collaboration of teachers; these needed to be worked out within the team. In 1994, there were administratively given rules for the whole school, and there was no need for the team to negotiate the rules; instead, the team of 1994 engaged in negotiations about the nature of student collaboration.

If one compares the activity and evolution of the teams' organization, one can not expect the organizational structure of the school to remain stable. Here, the structure of the organization of the teachers' collaboration changed significantly during the two-year study period. The form of the school organization changed, but the focus remained on teams. To compare the teams, one must keep in mind that both teams were qualitatively distinctive activity systems (see Engeström, 1987). In 1993, the team was based on a pedagogical concept, while in 1994 the concept of the team was pedagogical-administrative. The team of 1993 was relatively autonomous and separate from the rest of school. The object of planning, the Local Community unit, was shared by the team members and became open and networked. In 1994, the collaboration of the teachers was expanded because the whole school was restructured into teams as an administrative measure. However, the object of the team was fragmented into separate elective courses, and the curriculum unit became fragmented and classroom-centered. In the next chapter, I will examine more thoroughly the different objects of the teams and the collaborative learning within the teams as an ongoing re-formulation of their objects.

8. OBJECT FORMATION AND TURNING POINTS - COLLABORATIVE LEARNING IN TEACHER TEAMS

In the preceding chapter, I analyzed the use of different social languages in the teacher teams. In this chapter, I will go a step further in the discourse analysis by utilizing the results of the use of social languages. I am going to present a particular way to conceptualize and identify collaborative learning within the teacher teams during both planning processes. Collaborative learning is understood here from the framework of cultural historical activity theory as object formation in the team's activity. I will focus on the problem of how collaborative learning in team discourse can be analyzed as teams' ongoing reformulation and construction of their objects.

The research task of this chapter is to identify what kind of ongoing re-formulation of the teams' objects has been taking place, and whether one can explain it as collaborative learning. The methodological question of this chapter is how the team's ongoing reformulation of its object can be described and analyzed as an instance of collaborative learning. To examine collaborative learning by object formation of teams, the concept of the turning point of the object formation is needed. I will introduce the concept of the turning point with its operational dimensions, namely disturbance clusters, questioning, and interaction of different voices. Examination of the turning points of object formation in the light of their operational dimensions makes possible here analysis of teams' constant reformulation of their objects.

The change in the organization of teachers' collaboration enables here the evaluation and comparison of collaborative learning from the viewpoint of the relationship between the teams and their organizational structures. There was also a certain continuity in that three teachers from previous year's team participated in the team under study in 1994. I will also ask in this chapter what kinds of elements were brought from the first year's team model to the second year's model by those teachers who participated in both the 1993 and 1994 teams.

I will first introduce the theoretical and methodological framework of the analyses, that is how to study learning as object formation. I will then present the results of the analysis of turning points in object formation. Finally, I will discuss a contextual explanation of

collaborative learning and the different formation of objects in both years in teacher team planning.

THE NOTION OF OBJECT

I have examined the concept of object above in Chapter 3. As mentioned there, the object of activity is twofold in being both something given and something projected or anticipated (Leont'ev, 1977). To clarify the importance of the concept of object, I will compare it with the concept of "goal". The notion of goal is individual in its origin. The goal is something that one hopes to achieve. It is noteworthy that goal is defined as a fixed end state, as the following definition shows: "A goal may be defined as mental image or other end point representation associated with affect toward which action may be directed" (Pervin, 1989, p. 474).

As shown in chapter three, the objects and motives of activity are collective. The object has got its own inner dynamics manifesting itself in activity. This means that the object of activity is not fixed and clearly defined but constantly evolving. Miettinen (1998b) examined how a research object is constructed, based on activity theory. According to him, formation of a common research object is a major challenge for research groups. He analyzed object construction as a complex and continuous effort by the research group to create and maintain the purpose of their activity. The object was constantly renewed and changed as a result of changing social and societal circumstances, and of new research results and the emergence of new technologies.

Here, the notion of object directs the analysis to the collective effort of the two teams to construct the content of their pedagogy and their teamwork. When teacher teams plan a curriculum unit, a broader vision of teaching of teachers, and learning of students can be identified. In their complicated activity with division of labor, the members of the teacher teams shaped not only their own plans and goals but also collectively this broader vision of activity. In 1993, the object of the team was three-dimensional in that the teachers mould this broader vision of teaching of teachers, and learning of students. They planned, first, how to work as a team, and, second, the concrete curriculum unit, the Local Community theme. Third, the team decided to collect the outcomes of each subtheme for the newspaper run by the newspaper

editing group. In 1994, the object was one-dimensional in a way. Now, the teachers' did not plan as a team broader vision of teaching or students' learning. They organized 11 different elective courses. The task of the team, to plan and implement elective courses, was given by the administration. However, the teachers had freedom to decide what kind of courses they would plan.

LEARNING AS OBJECT FORMATION

From the viewpoint of activity theory, collaborative learning in the team can be analyzed as object formation. According to Engeström (1987), expansive learning means above all expansion of the object and motive of activity, including questions such as what is the aim of activity, what is produced, and why.

When can the object be evaluated as being expanded? In their article, Engeström et al. (1999) point out three types of object expansion in the work of children's hospital personnel, namely (1) linear and temporal, (2) the horizontal and sociospatial, and (3) ethical expansion. Temporal expansion included among other things, long-term interactions with a patient. Spatial expansion included making the network aware of and practically responsible for the coordination of multiple parallel medical needs and services in patients' lives. Ethical dimension included redistribution and reconceptualization of control, responsibility, and trust.

In my study, I found three types of expansion, namely sociospatial, temporal, and expansion-in-depth. Spatial expansion means that the object is seen as being spatially wider, e.g. focus can change from the classroom to a wider society. Temporal expansion means that the object is seen more widely over the course of time, e.g. focus can change from one lesson to theme-based wholeness including many periods in a month. Moreover, in my work, an ideological, expansion-in-depth reformulation of an object means that the ideological dimension of object will become deeper. E.g. the teachers reformulated the ideology of their pedagogy to include more clearly the perspective of students' learning not only a perspective of an abstract " free choice of a student".

Not all collaborative learning within an organization is expansive, however, since collaborative learning processes contain contradictory and multivoiced elements (Engeström, 1987), e.g. qualitatively narrowing cycle leading to reducing of activity can be found as well.

TURNING POINTS IN OBJECT FORMATION

By turning point I mean an event in team discourse during which the team began to outline their object in a new way. E.g. when the team planned the curriculum unit, it might occur that one participant questioned the pedagogical idea of team. This questioning at least brought a new viewpoint to the discussion which led to outlining of the object in a new way. During the planning process, the team often returned to the topics initiated in former turning points. During the turning points in object formation, disturbance clusters, questioning of ideas, and different voices of teachers as indicators of turning points could be identified.

The notions of “temporal midpoint” of the lifespan (Gersick, 1988; 1989), “breakdown” by Koschmann, Kuutti & Hickman, 1998) and “turn” by Virkkunen (1995) are relatives of the notion of the turning point. Gersick (1988; 1989) introduced the concept of temporal midpoint in her studies of life spans of several naturally occurring task-force teams. According to her, in all teams the temporal midpoint of the lifespan was of decisive importance for the end result of problem solving as groups shift their attention at their temporal midponts. Gersick (1989) found that the transition from the first phase to the second phase had some distinguishing features including group members' attention to time as the trigger mechanism for the transition. My notion of turning point differs from the meaning of temporal midpoint introduced by Gersick in that she identified some general, universal midpoints of the life span. I connect the turning point to the formulation of the object with concrete contents of the planning of curriculum units.

Koschmann, Kuutti & Hickman (1998) compared how Heidegger, Leont'ev, & Dewey understood the concept of “breakdown” or failure. All the three authors, Heidegger, Leont'ev, & Dewey, provided descriptions of breakdown in which the disruption of ongoing, nonreflective activity results in a shift to a more deliberate form of

practice. The terminologies of Heidegger, Leont'ev, & Dewey vary in that Heidegger emphasized absorbed copying vs. circumspective deliberation, Leont'ev emphasized routinized operations and discernment of intermediate goals, and Dewey emphasized habitual responding vs. engagement in inquiry. According to Koschmann, Kuutti, & Hickman (1998), Heidegger provided an account of breakdown as experienced by the individual, Leont'ev produced an account that focused on the organization of labor and practical activity, while Dewey focused on the effects of breakdown on the acting organism and on social relations and institutions. The concepts of a "breakdown" is close to what I mean by a turning point in object formation. I also found the same kind of shifting from a nonreflective activity to a more reflective practice taking place through questioning and at the emergence of disturbances into the activity. However, Koschmann, Kuutti & Hickman (1998) do not explain how to operationalize these concepts.

Virkkunen (1995) defined his concept of "turning point" (1995, p. 283) in the context of the work of labor inspectors. By turn he meant a type of change in relation to the plan. During the turn, a new viewpoint was discussed or a certain activity was changed in practice. He found both narrowing and widening turns in relation to the plan of labor inspectors in his study.

In my study, the activity of the teacher teams is not as strictly planned in advance as in Virkkunen's study on the work of labor inspectors. Instead, the turning points are related to object formation by the teams studied. The turning points in object formation may lead to narrowing, widening, switching, and disintegration of the object as the types of turning points in object formation (cf. Virkkunen, 1995). Widening object means always expansion of object - spatially, temporally or expansion-in-dept. Narrowing object means that the object of activity will narrow, e.g. teachers' teaching practices will narrow more traditional and classroom-centered. Switching of object means shift of object. It can occur e.g. in a conflict situation including different kinds of tension. Disintegration of object means that the object of teachers' activity will be fragmented. I will later classify these different types of turning point as an outcome of learning as reformation of the object, and interpret their significance in collaborative learning processes.

DISTURBANCE CLUSTERS, QUESTIONING, AND DIFFERENT VOICES AS INDICATORS OF TURNING POINTS

I will operationalize the concept of turning points with the help of three concepts, namely disturbance clusters, questioning, and interaction of different voices. The first indicator is appearance of disturbance clusters, namely clusters of dilemmas, disturbances, and innovation attempts (Engeström et al., 1991) of team discourse. The disturbance clusters acted as an indicator of the turning points in such a way that at least two disturbances, dilemmas or innovation attempts could be identified during every turning point.

Disturbances are visible discoordinations in the course of work and the discursive interaction including in it. They are unintentional deviations from the *script*. Script refers to a plan, set of rules, or tradition controlling the process of work. For instance, a script of a meeting can consist of a written agenda or a plan sketched in the mind of the chairperson of the meeting. Deviations from this plan or tradition can be identified as unexpected disturbances or innovations. However, in 1993, I could not identify any planned or established script. The team was in the beginning of its lifespan and was just planning how to work as a team. It had been founded on the initiative of the teachers themselves. The team had no chairperson. I interviewed the team members to find out what kind of a script they used in the meetings, but the teachers told that their guidelines of procedure were only in the process of evolving. The point was how the scripts came into being and evolved, and were changed by the team members. The following interview excerpt describes the conception of Anne's of how the meetings proceeded:

Anne: *This is a totally new team. Obviously we'll talk about practical things, for instance going from one place to another, and then we'll be talking about the pedagogical things. When we have moved forward a little bit, we could talk more about the pedagogical issues together*. (8/17/1993)

In 1994, the script of the meetings could be regarded as a guideline of how things should proceed from the beginning to the end during the whole planning process of the elective courses. Now there was a chairperson, the assistant principal, in the team. The process of how to plan the elective courses was a clear routine to the teachers. The

following interview excerpt describes the conception of Kaija's of how the meetings proceeded.

Kaija: *We always start with the planning meeting first where we select the courses. Then I would transcribe the form since it is in my charge as an assistant principal. The form will be sent to students' homes and they will choose two courses, their first and second priorities. Then there is that election meeting, about two days before the beginning of the class, in which we distribute the students into courses.* (11/26/94)

Referring to the concept of voice, *disturbances* are typically mismatches or conflicts between the participants' different voices that draw upon and represent different social languages. Thus, in discourse, disturbances typically include difficulties in understanding, disagreements, or rejections between or among participants. In the present study, this type of disturbance is referred to as an interactive disturbance. Disturbances can also manifest themselves in forms other than speech. These forms include gestures, expressions, and movements showing anxiety, even actions such as leaving the interaction situation. This type of disturbance is termed here a physical disturbance. A third type of disturbance examined here is an anticipatory disturbance, in which a potential problem is anticipated. Anticipation of a disturbance may become a disturbance in and of itself (cf. Engeström & Mazzocco, 1996).

Dilemma refers to a tension present in a participant's voice and thinking that manifests itself as hesitations, reservations, being "in two minds" about things, inconsistent opinions, even arguing with oneself (Billig et al., 1988). In speech, dilemmas often appear as hesitations and reservations characterized by clusters of "buts" and negatives. Dilemmas as such do not necessarily lead to disturbances, but they are manifested as tensions within the activity system.

Innovations are more or less conscious initiatives that seek to introduce a new idea or solution. Middleton (1996, p. 248) stated that innovations should be seen as a part of normal working practice, and "as formulable as part of the "commonplaces" of improvisation within ordinary everyday practice." Some initiatives remain only innovation attempts; this occurs when the innovation does not realize. Realization and spreading of an innovation usually demand positive reaction to the initiative from other team members.

The second indicator of turning points is *questioning*. Engeström (1998) used the concept of questioning as well. According to him, the expansive learning cycle begins with individual subjects questioning the accepted practice. In the present study, the turning points began with questioning of the ideas presented, present pedagogy, and work practices. Questioning revealed more about the content of the turning point than disturbance clusters. Not all disturbance clusters revealed different types of questioning, although disturbances appeared very often in the form of questioning and critique. However, not all questioning appeared as a form of critique. Upon further examination of the turning points, questioning always included doubts about whether the former ideas and ideologies presented or present working practices of the team were worthwhile or workable in practice. It was noteworthy that the team members did not much questioned the working practices of the entire school or other teachers.

The third indicator of turning points is *interaction of different voices* (Bakhtin, 1982). To analyze planning discourse of the teacher teams, the historical analysis of voices (Bakhtin, 1982, see also R. Engeström, 1995) is of crucial importance. A voice expresses viewpoint of a speaker in a communication situation (c. f., Wertsch, 1991). A topic of discussion is concidered from different points of view, that is in different respects (c.f., Hautamäki, 1983). According to Bakhtin (1982), a speaker always invokes a social language when speaking in a voice. In discourse, voice draws its contents from social languages of the communities (e.g., occupations) behind the speaker and thus reflects historically developed cultural models. Speech in which individual utterances are spoken in a social language, or in which a voice speaks through another voice or social language, represents polyphony (Bakhtin, 1982). However, a voice is not a readily moulded expectation of society. A voice always comes from a concrete person in a concrete situation, which is why voices can also change and develop. Voices draw their contents from the social languages. Analysis of the preceding chapter (see also Kärkkäinen, 1997c) identified the social languages in team discourse. Here, these social languages act as starting point of the analysis of voices. The teachers' voices represented these identified social languages.

The voices focused on the content of the turning points. Different voices acted as indicators of the turning points in object formation in

such a way that there could be always identified two different voices in which at least one of the two voices always represented either the variations of the language of pedagogical reform or seeds of a new language. The fact that the variations of the language of pedagogical reform and seeds of a new language dominated was connected to the construction of the teams' objects. By the help of the variations of the language of the pedagogical reform the team members tried to zoom their talk to the pedagogical idea and the nucleus of the team, in other words, to the object of their work. By the help of the seeds of a new language, mostly as critique talk about the implemented pedagogy, they zoomed the critique to the object of their work.

For a better understanding of the indicators of the turning points, the excerpt below explains how the disturbance clusters, questioning of previously presented ideas, and interaction of different voices appeared, and illustrates the indicators of the turning point (6/1993) in the team discourse. The turning point took place in a situation where the team had realized the Local Community theme. In the meeting, the team evaluated their pedagogy which emphasized the students' opportunity of choice from the viewpoint of how it functioned during the Local Community unit.

61 Liisa: Well, what do you think, are they [the students' choices] worth being controlled? Now we are letting everyone join the group of their first choice.
62 Pekka: No, no, I am not for control.
63 Riku: No, neither am I.
64 Liisa: It is sort of against this basic principle.
65 Riku: Yes, although they may choose their group, but how do we know (…)
66 Anne: Yeah, but there is something we might want to write down (takes the papers closer, makes gestures), so that when the next theme begins, we might go through these [the background information of each student] in much more detail than before. So we would, at an early stage have a clear picture about which student is in which group, and then we could say that hey, I have this student joining to your group.
67 Pekka: It came to my mind that how, if we tell (…), probably we will tell each other about these problematic cases, that how much that information will influence our attitudes. I think, on the other hand, it has been good to have such an open situation.
68 Leila: But I suppose this information will be rather superficial,

after all. (Meeting 9/1993, in episode 1/18.)

Above, as for the indicator of disturbance clusters, first note Turn 62 in which Pekka disagreed with Liisa as an interactive disturbance (words “no, no” as indicator of disturbance). Second, an innovation attempt in Anne's turn (Turn 66) can be identified ; she suggested that the teachers should discuss the students in advance and exchange knowledge concerning them. Third, in his Turn 65, Riku presented a dilemma over whether the team should control the choices of the students or not (“though they may choose their group, but how do we know”.) Fourth, an anticipatory disturbance can be identified in Pekka's turn (Turn 67); he interrupted Anne's turn and questioned Anne's innovative attempt by asking whether information about the problems of students in advance could also influence attitudes. As a solution, Leila suggested that the teachers should exchange general information about the students "this information will be rather superficial, after all" (Turn 68). Here the anticipatory disturbance raised by Pekka contracted the examination of Anne's innovation attempt to exchange information about the students.

With regard to the indicator of questioning, Liisa started the discussion by questioning the idea of free choice of the students (Turn 61). The teachers evaluated their working practices which emphasized students' opportunities for choice from the viewpoint of how it functioned during the theme unit.

As for the indicator of interaction of different voices, three different voices could be identified in this excerpt, namely *the variation of everyday experience*, *the variations of child-centered pedagogy*, and *seeds of a new language*. Liisa started the discussion with the variation of everyday experience (Turn 61, “Now we let everyone take the group they had primarily chosen, and it did not work very well. “) Second, the teachers’ voices resonated with the variation of child-centered pedagogy (Turn 64, “It is sort of against this basic principle.”).The teachers were against the control of children as a basic reform-pedagogical principle. In Anne’s turn (65), seeds of a new language can be identified as self-critique which emphasized that the teachers should discuss the students in advance and exchange knowledge concerning them (“when the next theme begins, we might go through these much better than earlier.”) Here, with the aid of the variation of child-centered pedagogy and seeds of a new language as self-critique talk the teachers zoomed their discussion to include the pedagogical idea of the team.

Above, the teachers discussed the need to know the students better by discussing their background together in the team and by exchanging information about them, although the definition of what type of information would have been needed remained obscure. However, widening of object could be identified. As a learning outcome the object can be interpreted as expanding temporally, including need of long-term knowing of students. During the later turning points, the teachers re-evolved their pedagogical ideas and specified what kind of information they would need about their students.

Analysis of the turning points in object formation was comprised of examination of the nature of disturbance clusters, questioning, and voices during each turning point. Previous analysis of the data divided the transcripts into discourse topics. Within these topics, I separated the events of the turning points by the help of disturbance clusters, questioning of the ideas, and interaction of different voices. Per Linell (1995) defines episodes as events that must be identified in their dialogue embedding. Recall, that in 1993 there was a total of 149 episodes. In the 1994 meetings, there was a total of 62 episodes. In 1993, eight events of turning points could be identified and in 1994, seven turning point events could be identified. Within each turning point event, I identified the types of the turning points as outcome of learning in the form of reformation of object.

TURNING POINTS IN OBJECT FORMATION

As stated earlier, in 1993, the planning process of the Local Community theme consisted of three phases: the first four meetings was described as the idea phase of the theme-working model, the second phase (meetings 5 - 7) was defined as constructing a plan for the Local Community theme, and the third phase (meetings 8-12) consisted of implementation and evaluation of the Local Community theme and theme-working model. In 1994, the planning process of the elective courses consisted of two phases. The first three meetings were described as constructing a plan for the elective courses. The second phase (meeting 4) consisted of evaluating the elective courses. The turning point tables are presented below within each phase of the two planning processes, with columns indicating each turning point and the

learning outcome of each turning point. There is also presented the learning outcome figure as reformation of object after each phase.

THE LOCAL COMMUNITY THEME IN 1993

Phase 1. Constructing of the idea of the theme-working model

Table 8.1. below presents the turning points of Phase 1.

TURNING POINTS	INDICATORS OF TURNING POINTS	LEARNING OUTCOME
Turning point 1 Ideological discourse of students free choice	1. Disturbance clusters: *2 dilemmas*: whether to emphasize free choice or tutoring, and *an interactive disturbance*: questioning the rationale of control. 2. Questioning: the rationale of free choice 3. Voices: everyday experience - child-centered pedagogy	Widening of the object (expansion in depth): attempt to elaborate the ideology of free choice
Turning point 2 Joint meeting with Team B: defining the differences of team models	1. Disturbance clusters: *2 interactive disturbances*: questioning of the rationale of team B's model, and different points of view between Teams A and B. 2. Questioning of the rationale of team B's model as offering forced alternatives 3. Voices: child-centered pedagogy as emphasizing free choice - child-centered pedagogy as emphasizing certain objectives	Widening of the object (expansion in depth): analytical nature of learning by identifying the differences between the two models
Turning point 3 Defining the concept of theme-working after joint meeting	1. Disturbance clusters: *2 dilemmas*: whether to emphasize own model or imitate the model of Team B, and *an innovation*: the concept of theme-working. 2. Questioning: the rationale of Team's B model 3. Voices: us versus them - child-centered pedagogy	Widening of the object (expansion in depth): creating a new concept "theme-working"

Table 8.1. Turning points in object formation in phase 1: Constructing the idea of theme-working in 1993

In Phase 1, turning points in object formation could be identified altogether three. All turning points were connected with formation of the idea of the theme. Turning point 1 occurred when the team initiated an ideological discussion about the pedagogical idea of student motivation and opportunities to choose, and it was named as "ideological discourse of students free choice." Turning point 2

occurred in an interaction with another team (B) in the school. Team B wanted to present its model to team A, the team studied here. The model was based on elective courses offered to selected students. These elective courses were taught in groups of 10 students. Together with their parents, students had to select one of two alternative courses offered to them. Team A did not want to emulate team B's model but instead wanted to outline a model of their own. Turning point 3 was identified when team under study (team A) held its own meeting after the joint meeting. The discussion within team A continued the argument concerning team B's ideas, although team B was no longer present.

During the turning points, disturbance clusters with disturbances (e.g., questioning of the rationale of team B's model), dilemmas (e.g., what would happen if the students could choose but then all the students chose the same group), and innovation (creating the concept of theme-working) could be identified. Second, each turning point included questioning of the ideology of pedagogy (e.g., questioning the rationale of free choice of the students).Third, with regard to interaction of the different voices during the third turning point, the teachers' voices at first resonated with the variation in the language of practical experience ("us versus them") when the teachers did not want to emulate the model of Team B. The reactions of the teachers were emotional, however, the teachers continued their discussion by further elaborating their pedagogical basis for theme with the voice of "child-centered pedagogy." This interaction between the two voices of the teachers ("us versus them" and "child-centered pedagogy") was fruitful. The interaction of the different voices acted as a catalyst for innovation, namely model settling of their own theme-working.

From the viewpoint of learning outcomes of each turning point, they all led into widening of the object. During the turning points, the ideology of the theme-working model expanded in depth. The teachers questioned the idea of free choice and thus constructed the ideology of the child-centered pedagogy. It is noteworthy that the teachers returned to evaluation of the ideology of student free choice in the evaluation phase (in Table 8.1., turning points 6 and 7). The team identified the differences between their own model and Team B's model and settled for their own. The findings of Phase 1 are summarized in Figure 8.1.

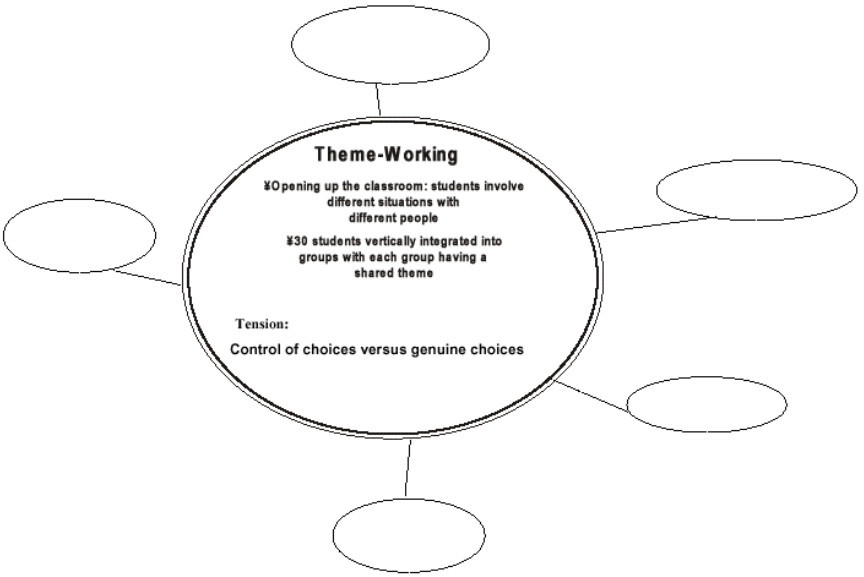


Figure 8. 1. Phase 1: Construction of the model "theme-working"

In Phase 1, as the figure points out, the outcome of learning as reformation of the object can be summarized so that the team defined and settled for a model of their own, and named it theme-working. In their meetings the teachers also discussed that they would plan five subthemes within some broader theme. The pedagogical idea of theme-working was opening up the classroom so that students could be involved in different situations with different people. Theme-working was based on groups totaling 30 students, with each group having a different theme within an overall shared theme (for a separate analysis of this issue, see Engeström et al., 1995). The tension appeared to be between control of student choices vs. offering them genuine choices. The teachers were in a situation that demanded from them that they

simultaneously offer genuine opportunities for the students to choose their themes and to control or tutor their choices.

Phase 2. Constructing the plan for the Local Community theme

Table 8.2. presents the turning points of Phase 2.

TURNING POINTS	INDICATORS OF TURNING POINTS	LEARNING OUTCOME
Turning point 4 Discussing the need for collaboration during the Local Community theme and overall teaching	1. Disturbance clusters: *a dilemma*: whether to collaborate or have autonomy, and *an innovations*: teachers could collaborate during normal lessons concerning the students which have learning difficulties, decision to collect the outcomes within every group 2. Questioning: the rationale of collaboration only during theme-working three hours per week. 3.Voices: teacher's collaboration - teacher's autonomy	Widening of the object (spatial expansion): attempt to enlarge teacher collaboration, decision to collect outcomes within every group of the Local Community theme by reporting them in a newspaper

Table 8.2. Turning points in object formation in phase 2: Constructing the plan for the Local Community theme in 1993

In Phase 2, the teachers developed the plan for the Local Community theme in the three meetings before implementation of the Local Community unit was begun. The only turning point (4) of this phase occurred when the need for collaboration during overall teaching, not only during planning and implementation of the Local Community theme, arose as a topic of discussion. The teachers questioned the rationale of collaboration for three hours per week only during the theme. As innovations, one teacher proposed that the team would expand their collaboration during normal teaching concerning the students with learning difficulties and another teacher proposed that the teachers would collect the outcomes within every sub-group by reporting them in their newspaper . A dilemma of whether to have flexible collaboration or maintain the autonomy of every teacher could also be identified. Both the variations "teacher's collaboration" and "teacher's autonomy" could be heard in the teachers' voices. Spatial widening of the object could be identified as learning outcome in that the turning point was an attempt to enlarge teacher collaboration. It is

noteworthy that the teachers again discussed this point of view later during the turning point 8 (see Table 8.2.). The findings of Phase 2 are summarized in Figure 8.2.

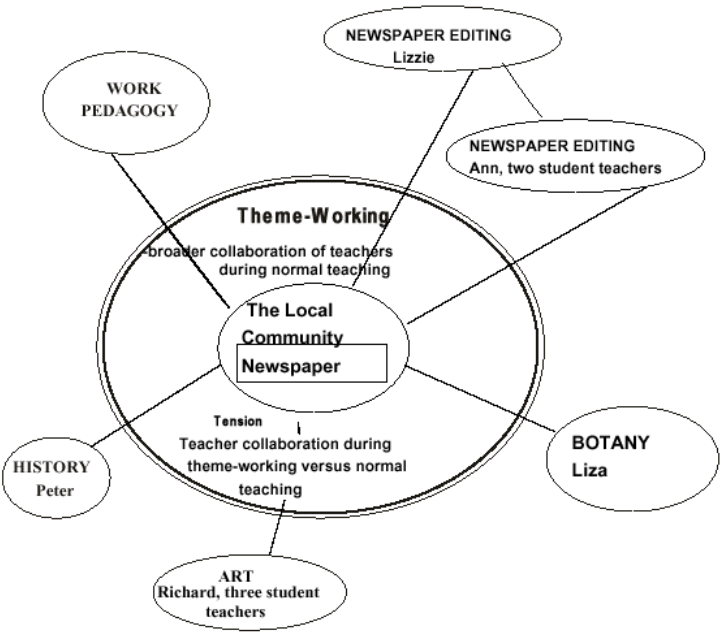


Figure 8.2. Phase 2: Construction of the plan for the Local Community

In Phase 2, the outcome of learning as object reformation can be summarized such that the team settled for a plan of the Local Community theme and discussed enlarging the idea of teacher collaboration to include normal teaching. The teachers constructed the subthemes of the Local Community theme: "history", "art", "botany", "work pedagogy", and "newspaper editing" as oriented away from the

classroom. These themes were divided into smaller sub-groups. Each teacher was responsible for one group. The teachers also decided to collect the outcomes within each group by reporting them in their newspaper as an outcome of the newspaper editing group. The teachers decided that they were all in charge of organizing the work pedagogy group. Tension could be identified between teacher autonomy and individuality on the one hand and collective attempts on the other (cf. Little, 1990; Little & McLauglin, 1993).

Phase 3. Implementation and evaluation of the Local Community unit and of the pedagogical idea of theme-working

Table 8.3. presents the turning points of Phase 3.

TURNING POINTS	INDICATORS OF TURNING POINTS	LEARNING OUTCOME
Turning point 5 Discussing the conflict with an instructor	1. Disturbance clusters: *2 interactive disturbances*: disagreement about how to ensure student safety in a conflict situation. 2. Questioning: the rationale that an instructor is the person who decides. 3. Voices: teacher autonomy - rules of teacher work-teacher collaboration	Switching of the object: the teachers discussed how to ensure the safety of the students when going outside the classroom in an exceptional situation
Turning point 6 Evaluation of the pedagogical idea of student free choice	1. Disturbance clusters: *an interactive disturbance*: disagreement about controlling of students, *a dilemma* : whether the students should be controlled or not, *an innovation attempt*: suggestion to exchange knowledge from students with difficulties, *and an anticipatory disturbance*: anticipation that information about the problems could influence teacher attitudes. 2. Questioning: the rationale of free choice of the students. 3. Voices:child-centered pedagogy- seeds of a new language	Widening of the object (temporal expansion): discussion from the viewpoint of need to know the students (the definition of what type of information would be needed remained obscure)
Turning point 7 Evaluation: what is the source of student motivation	1. Disturbance clusters: *an interactive disturbance*: questioning the problem of the lack of motivation only, and *an innovation*: decision to exchange information 2. Questioning: the present idea of what motivates students. 3. Voices: child-centered pedagogy- seeds of a new language	Widening of the object (temporal and in depth expansion):reformulation of the model to include exchange of knowledge in advance for students
Turning point 8 Evaluation: how to organize theme-working in future	1. Disturbance clusters: *an interactive disturbance*: disagreement about how to organize the themes, *and an innovation*: suggestion that theme-working idea should be expanded to concern normal teaching. 2. Questioning: the rationale of present organization of the theme-working. 3. Voices: everyday experience - seeds of new variation	Widening of the object (spatial expansion): reformulation of the theme- working to include expanded collaboration

Table 8.3. Turning points in object formation in phase 3: Implementation and evaluation of the Local Community theme and theme-working in 1993

In Phase 3, the team realized the Local Community theme in three-hour sessions held once per week for five weeks. Four turning points could be identified during the phase. Turning point (5) could be identified when the team began to discuss about the disagreement with an instructor of the student teachers which was concerned with how to ensure the safety of the students. Anne had planned that two students in her newspaper editing group would go together with a student teacher to interview a salesperson in a pet shop for a newspaper article. The problem was that the instructor did not approve of this, because from her perspective a student teacher could not be responsible for students outside the school. It was the teacher who should go with the students and be responsible for the safety of the students. How the remaining and relatively large group of students would manage in the meantime became a problem.

The next turning point (6) of the phase occurred when the team evaluated their pedagogy which emphasized student opportunities for choice from the viewpoint of how it functioned in the Local Community unit (see section on “Disturbance clusters…”).

Turning point (7) was identified when the team again evaluated their pedagogy which emphasized that a genuine possibility of choice is the source of student motivation. The teachers then decided to exchange information in advance, and reformulated a new type of pedagogy in which facilitating student learning would play a larger role. Turning point (8) could be identified when the teachers evaluated the theme-working model from the viewpoint of how it should be organized in the future. The teachers criticized that there had been too many students in the groups and also too many sub-groups within groups. The idea of collaboration during overall teaching and not only for three hours per week, as discussed in turning point (4), was discussed again.

During each turning point, disturbance clusters with disturbances (e.g., different perspectives of the teachers concerning conflict with an instructor: an instructor in no position to give orders about matters concerning the theme vs. certain rules that had to be considered), dilemmas (e.g., whether the students should be controlled or not), and innovations (e.g., a decision to exchange information about the students in advance so that each teacher would be better able to plan the work of his or her group) could be identified. Each turning point included questioning as well (such as questioning the present idea of what

motivates students). With regard to interaction of the different voices, e.g. that between "child-centered pedagogy" and seeds of a new language led to a definition of a new pedagogy. The teachers decided to exchange information in advance and to facilitate student learning.

From the viewpoint of learning outcomes of each turning point, switching and widening of the object could be identified. In turning point (5), the teachers switched the object in the sense that they began to discuss how to ensure the safety of the students in a conflict situation, not as a basic principle of ensuring the student safety outside the school. In turning point (6), the object widened temporally in that a discussion ensued from the viewpoint of the need to know the students. The widening objects in turning points (7) and (8) expressed as expansion of the object in depth included reformation of theme-working to cover exchange of information and expanded collaboration of the teachers. The findings of Phase 3 are summarized in Figure 8.3.



Figure 8.3. Phase 3: Implementation and evaluation of theme-working and the Local Community

In Phase 3, the outcome of learning as object reformation could be summarized so that the team reformulated the idea of the theme-working model to include facilitation of student learning as pedagogy, and that the theme-working model should be expanded to concern normal teaching. The tension appeared to be derived from opening up the classroom vs. ensuring the safety of the students. The teaching should have been largely outward-oriented and involving the close surroundings of the school, but instead the administrative rules did not allow students to go outside the school without their teacher. In spite of the fact that there were restrictive rules of the teachers' activity (see turning point 5), the Local Community unit was implemeted as a complex and open network of different, largely outward-oriented activities. The teaching was strongly oriented away from the class, comprising the close surroundings of the school. Second, the tension appeared to be derived from free choice vs. controlling of choices. The original pedagogical idea of theme-working was that a genuine possibility of choice is the source of student motivation; however, this ideology did not work in practice when the teachers implemented the Local Community theme. In addition, the tension appeared to be derived from theme-working vs. overall teaching. The teachers wanted to organize the theme-working so that it would work, but on the other hand they also wanted to organize the normal lessons so that they would work.

THE ELECTIVE COURSES IN 1994

Phase 1. Constructing the plan of the elective courses

Table 8.4. presents the turning points of Phase 1.

TURNING POINTS	INDICATORS OF TURNING POINTS	OUTCOME OF LEARNING
Turning point 1 Commitment discussion: will the teachers participate in the planning of the courses?	1.Disturbance clusters: *a physical disturbance*: Teacher 8 leaves the table, and *an interactive disturbance*: different perspectives concerning planning as individual vs. collaborative activity. 2. Questioning: the rationale of individual planning. 3. Voices: teacher autonomy -teacher collaboration	Widening of the object (spatial expansion): bringing the idea of joint planning by the teachers
Turning point 2 Effort to bring the idea of shared theme from the theme-working into the design of the elective courses	1.Disturbance clusters: *a dilemma*: whether to have a common theme or not, *an innovation attempt*: the idea of a shared theme, and *an interactive disturbance:* when discussing common theme, a teacher brought her individual course preference to the discussion. 2. Questioning: the rationale of fragmented courses. 3. Voices: teacher collaboration - teacher autonomy	Disintegrating of the object: some courses were organized under theme "Town" and the others would be separate courses
Turning point 3 Effort to bring the shared presentation of the outcomes into the design of the elective courses	1.Disturbance clusters: *an innovation attempt*: shared presentation or exhibition of the outcomes of courses, and *an anticipatory disturbance*: no time for common presentation, exhibition would be better. 2. Questioning: the rationale of fragmented courses. 3. Voices:teacher collaboration - everyday experience	Widening of the object (spatial expansion): shared exhibition of the different elective courses
Turning point 4 Effort to bring the idea of students' work-study from the theme-working into the design of the elective courses	1.Disturbance clusters: *a dilemma*: whether to open up the classroom or not, and *an innovation attempt:* attempt to expand the idea of work-study outside the school. 2. Questioning: the rationale of lack of work-study 3. Voices: opening up the classroom - experience-based organizing.	Narrowing of the object: decision that there was no need to acquire more work-study places for the students

Table 8.4. Turning points in object formation in phase 1: Constructing the plan for the elective courses in 1994

In Phase 1, the team discussed mainly the titles of the courses, the assignment of students to the courses and organizing the elective

courses. Here a total of four turning points of object formation could be identified in which three were connected with the elements that were brought from the first year's team model to the second year's model by the three teachers who participated in both the 1993 and 1994 teams. The first turning point (1) of object formation occurred when the team began to discuss the commitment of each teacher to planning and implementation of the present elective course period. In 1994, teacher participation in planning of the elective courses was voluntary. Every teacher could participate or not without informing anyone in advance, which meant that members of the team changed from period to period.

The second turning point (2) occurred when the teachers from the previous year's team tried to bring the idea of shared theme from the theme-working model into the design of the elective courses. The third turning point (3) of object formation was the effort to bring the shared presentation of the outcomes into the design of the elective courses. Anne, a member of the previous year's team, brought this idea into the discussion.

Recall that the 1993 team had decided to collect the outcomes from every group and present them in their newspaper. The fourth turning point of object formation (4) was the effort to bring the idea of student work-study from the theme-working into the design of the elective courses. Pekka, a member of the previous year's team, attempted to bring the idea of student work-study outside the school into the discussion.

During each turning point, disturbance clusters with disturbances (e.g. leaving the meeting table), dilemmas (e.g., whether to have a shared theme or not), and innovation attempts (e.g., that the teachers could collect the outcomes from every course and present them together) could be identified. For instance, the teachers questioned the rationale of fragmented elective courses. With regard to the interaction of the different voices, e.g. in turning point (2), interaction between the variations “teachers' collaboration” and “teacher's autonomy” could be identified in the teachers’ voices. As a result, the teachers divided students into 11 groups so that each group contained about 20 students with one leader. Some of the courses were connected to the theme "town" but most were separate courses.

From the viewpoint of learning outcomes of each turning point, disintegration, narrowing and widening of the object could be identified. In turning point (1), there was an attempt to widen the object spatially in that the idea of the joint planning of the teachers was brought into the discourse. However, in turning point (2), the object disintegrated in the sense that it was decided to implement some elective courses under the theme "town" but that the others would be separate courses. The third turning point included spatial widening of the object since it was decided to collaborate so that the team would have a shared exhibition of the different elective courses. However, in the evaluation phase it was observed that no common exhibition was realized in practice. The fourth turning point led to narrowing of the object, since it was decided not to acquire more work-study places for the students.

The findings of Phase 1 are summarized in Figure 8.4.

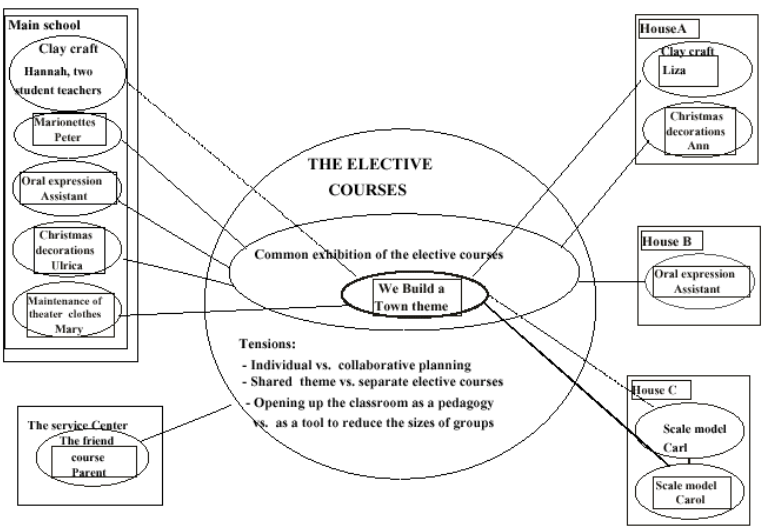


Figure 8.4. Phase 1: Construction of the plan for the elective courses

In Phase 1, the outcome of learning as object reformation can be summarized so that the team settled for a plan for the elective courses including a shared exhibition of separate courses. Some of the courses were connected to the theme "town" but most were separate courses. The teachers divided students into 11 groups so that each group contained about 20 students with one leader.

The tensions appeared to be derived from individual vs. collaborative planning. This tension occurred because the teachers who had been members of the 1993 teams (A and B) had become used to planning together. The tension also appeared to be derived from shared theme vs. fragmented courses. The idea of elective courses did not include a common, shared theme. In addition, the tension appeared to be derived from opening up the classroom as a pedagogy vs. opening up the classroom as a tool to reduce student group sizes.

Phase 2. Evaluation of the elective courses

Table 8.5. presents the turning points of Phase 2.

TURNING POINTS	INDICATORS OF TURNING POINTS	OUTCOME OF LEARNING
Turning point 5 Reconsidering the idea of shared theme	1. Disturbance clusters: *2 interactive disturbances*: disagreements concerning the next course period and its contents, *a dilemma*: how to decide the theme (4 teachers absent), and *an innovation*: connecting the next course period with the opera theme. 2. Questioning: the rationale of separate courses. 3.Voices: teacher collaboration -seeds of a new language	Widening of the object (spatial and in depth expansion): elaborating the idea of the elective courses to include the idea of a shared theme and joint planning of teachers
Turning point 6 Reconsidering the idea of work-study outside the school	1. Disturbance clusters: *a dilemma:* whether to open up the classroom, and *an innovation*: acquiring more work-study places during next course period. 2. Questioning: the rationale of lack of work-study. 3. Voices: opening up the classroom - organizing work outside the classroom	Widening of the object (spatial and in depth expansion): elaborating the idea of the elective courses to include work-study outside the school
Turning point 7 Evaluating the pedagogical idea of students' group work	1. Disturbance clusters: *an interactive disturbance*: criticizing large hierarchical groups, and *an innovation attempt* by questioning the idea of student group work. 2.Questioning: the present rationale of dividing students into groups. 3.Voices:cooperative learning-seeds of a new language	Widening of the object (in-depth expansion): criticizing the idea of group work and trying to reconceptualize it

Table 8.5. Turning points in object formation in phase 2: Evaluation of the elective courses in 1994

In Phase 2, the team evaluated the implemented elective courses and reconsidered the ideas of shared theme and work-study outside the school. During the time that the elective courses were being implemented no meetings were held. Only four of the team teachers were present in the only evaluation meeting held. In addition, Riku, a member of the previous year's team, and the principal participated in the meeting, in which each teacher reported briefly on the instruction and how well it had succeeded in meeting its goals. None of the teachers, except Riku who was not a member of this team, knew what had occurred in the groups led by outside leaders. A total of three turning points could be identified during the phase.

Turning point (5) occurred when the team reconsidered the idea of a shared theme and turning point (6) when the teachers reconsidered the

idea of work-study outside the school. Turning point (7) occurred when the teachers evaluated in a critique the pedagogical idea of student group work from the viewpoint of how the group work of the students had functioned.

During each turning points, disturbance clusters with disturbances (e.g. disagreements about the next course period and its contents), dilemmas (e.g. whether to open up the classroom), and innovations (e.g. connecting the next course period with the “opera” theme) could be identified. Questions included such as questioning the present idea of student group work. With regard to interaction of the different voices, e.g. in turning point (7) , both the variation of "cooperative learning" and seeds of a new language as a critique talk could be heard in the teachers' voices, leading to an attempt to reconceptualize the group work of the students.

From the viewpoint of learning outcomes of each turning point, spatial and in depth widening of the object could be identified. In turning point (5), the teachers elaborated the idea of the elective courses to include the idea of a shared theme. It was suggested that the next elective course period should be connected with the actual projects of the school. In turning point (6), the teachers elaborated the idea of the elective courses to include work-study outside the school. It was then suggested that the team should also acquire work-study areas also from another service center for the elderly, and from the local children’s day-care center. In turning point (7), the teachers criticized the idea of group work and attempted to reconceptualize it. The findings of Phase 2 are summarized in Figure 8.5.

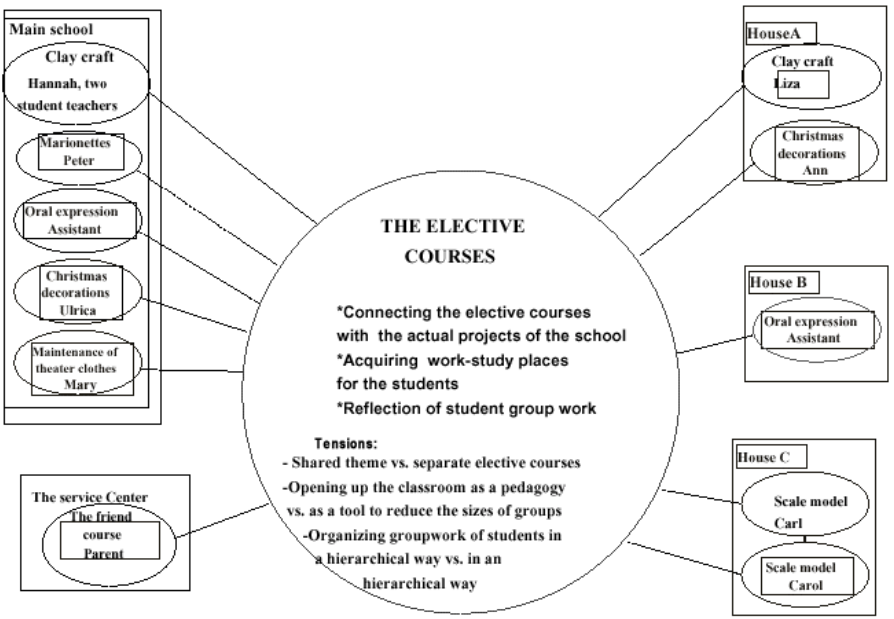


Figure 8.5. Phase 2: Evaluation of the elective courses

In Phase 2, the outcome of learning as object reformation can be summarized so that the team reformulated the idea of the elective courses to include a shared theme and work-study outside the school and attempt to reconceptualize the idea of student group work. In practice, the 11 elective courses were implemented in five different buildings with one to three floors. The courses that were connected with the theme "town" were implemented as separate courses.

The tensions appeared at first to be derived from shared theme vs. fragmented courses. A need was identified for broader cooperation

among the teachers and also cooperation across different projects. Second, the tension also appeared to be derived from opening up the classroom as a pedagogy vs. opening up the classroom as a tool to reduce group sizes of the students. A need was identified for the pedagogical idea and implementation of the work-study. In addition, the tension appeared to be derived organizing group work of the students in a nonhierarchical vs. hierarchical manner. The teachers evaluated their pedagogy emphasizing cooperative learning as a critique of implemented pedagogy. By reflecting the principles of student group work they attempted to reconceptualize the group work of the students.

INTERPRETATION OF THE FINDINGS

This chapter has explored collaborative learning within teams as object formation by identifying the turning points in object formation of the teams as a source of collaborative learning. During the turning points, the team outlined their object in a new way. Table 8.6. presents the summary of the indicators of the turning points.

	1993	**1994**
Disturbance clusters (f): Dilemmas Disturbances Innovation attempts Total	6 9 6 21	4 7 6 17
Frequency and contents of questioning	-3 questioning of the ideology of free choice for students -2 questioning of the model of Team B ("forced alternative" for students) questioning of the idea that teachers uld collaborate only during the eme- working ssions once per week three hours at a ne. -1 questioning of the idea that an outsider could decide how to organize theme-working	-4 questioning of the planning of the fragmented elective courses -2 questioning of the lack of work-study during the elective course period -1 questioning of the idea of how to divide students into groups
Voices (frequency of appearance/turning points): Everyday experience Administration Pedagogical reform Seeds of new languages	5 /8 1/8 7 /8 3/8	4/7 0/7 7/7 2/7

Table 8.6. Summary of the indicators of the turning points

As Table 8.6. shows, a total of 21 dilemmas, disturbances, or innovation attempts was identified as disturbance clusters during the planning process of the Local Community theme and 17 during the planning process of the elective courses.

The turning points in 1993 began when one of the team members questioned the present pedagogy of the team, the present idea of organizing the curriculum unit, or some previously presented idea. As for the contents of questioning, during the planning process of the Local Community theme, questioning that was connected with the ideology of free choice for students there could be identified three times. Questioning which was connected to the model of Team B in that it offered compulsory alternatives rather than genuine choice was

identified twice. Questioning which was connected to the idea that teachers would collaborate only during the theme-working sessions once a week three hours at a time was identified twice. Questioning of the idea that an outsider could decide how to organize theme-working was questioned once. During the planning process of the elective courses, questioning which was connected to the planning of the fragmented elective courses without a shared theme could be identified four times. Questioning of the lack of work-study during the elective course period could be identified twice and questioning of how to divide students into groups was identified once.

The analysis of preceding chapter showed that as also shown by the use of social languages in discourse, in 1993, occurrence of the language of reform-pedagogy was 43 % of all languages. The occurrence of the language of administration was 8 % while 45 % of teacher discussion represented the language of practical experience. Occurrence of the seeds of a new language was 4 %, and these seeds appeared mainly in the evaluation phase of the planning. In 1994, the language of pedagogical reform played a much weaker role in 1994 than in 1993 (24 %). The language of administration was nearly absent (3 %). 67 % represented the language of practical experience, and the seeds of a new language 6%.

As the table shows, use of the language of reform-pedagogy during all the 1994 turning points and during seven of eight 1993 turning points could be identified. The high occurrence of new language seeds during the turning points of both years was also notable. By the help of the variations of the language of the pedagogical reform the team members zoomed their talk to the pedagogical idea and nuclear of the team, in other words, to the object of their work. With the aid of new language seeds, mostly as a critique, they criticized the implemented pedagogy, in other words, the critique was widened to include the object of their work.

The turning points of object formation can be interpreted in the light of the turning point types in object formation, namely narrowing, widening (spatial-, temporal-, and in-depth expansion) switching and the disintegration of the object. Table 8.7. below shows as a summary the turning point contents in object formation.

	1993		**1994**	
Outcome of learning	*f/8*	*Content of the turning points in each phase of the planning process of the Local Community theme*	*f/7*	*Content of the turning points in each phase of the planning process of the elective courses*
Widening of the object	7/8	- the three turning points of the idea phase were connected with the expansion in depth: elaboration and the creation of the concept of the theme-working - the turning point of the plan phase was connected with the spatial expansion: an effort to enlarge teacher collaboration - the three turning points of the evaluation phase were connected with the spatial, temporal and in-depth expansions: expansion of collaboration of the teachers, discussion of the need to know the students better, and aboration of the concept of theme-orking	5/7	-the two turning points of the plan phase were connected ith spatial expansion of the object: attempts to enlarge the collaboration of teachers (joint planning of teachers and joint presentation of the outcomes of courses) - the three turning points of the plan phase were connected with spatial and in-depth widening of the object: enlargement of the collaboration of the teachers, work-study outside the school and reconceptualizing the idea of group work of students
Narrowing of the object	0/8		1/7	-the turning point of the plan phase was connected with narrowing of the object since it was decided not to acquire work-study places for the students
Disintegration of the object	0/8		1/7	-the turning point of the plan phase was connected with the disintegration of the object in the sense that it was decided to implement some elective courses under theme "Town" but the others would be implemented as separate courses
Switching of the object	1/8	-the turning point of the evaluation phase was connected with the switch of the object in the sense that the teachers started to discuss how to ensure the safety of the students	0/7	

Table 8.7. Summary of the outcome of learning of the turning points

As Table 8.7. shows, widening of the object was the most frequent type of turning point in object formation in both years, however, the development of the teams was contradictory in that narrowing and disintegration of the object could also be identified in 1994. In 1993, widening of the object included expansion of the object in depth. The turning points of object formation showed that the original pedagogical idea of theme-working, including that genuine possibility of choice is the source of student motivation did not work in practice when the teachers implemented the Local Community theme. Not all students were motivated to work although they had the freedom to choose the subtheme in which to participate. The team elaborated and created the concept of theme-working, and also evaluated and re-elaborated the concept in the evaluation phase so that the ideological dimension of the object became deeper. The tension between control of student choices vs. offering them genuine opportunities for choice made the team elaborate a new type of pedagogy that would emphasize facilitation of student learning.

Second, the object was widened spatially. During the turning points of the plan and the evaluation phase, the teachers attempted to widen teacher collaboration. The idea of theme-working was "narrow" in the sense that the teachers planned the theme-working sessions once per week, and the theme-working sessions were also implemented once per week for three hours at a time. The tension between theme-working vs. overall teaching led the team to seek possibilities for expanding their collaboration. Spatial expansion also included the network and openness of the Local Community theme in that the planning and implementation of the theme was strongly oriented away from the class and comprised the close surroundings of the school. The focus thus changed from the classroom to the wider society. Third, the object was widened temporally, including discussion in the evaluation phase that the team members should get to know the students better by long-term interaction with them and by exchanging information about them.

In 1993, one turning point of the evaluation phase did not include widening of the object. This very turning point was essential in the sense that the teachers began to discuss the tension of how to ensure the safety of the students on the one hand and how to acquire information outside the school. I refer to this turning point as object switching. The tension was connected with an exceptional situation in that the teachers

conflicted with an instructor of the student teachers. One teacher had planned that two students in her newspaper editing group would go together with a student teacher to interview a salesperson in a pet shop for a newspaper article. The instructor had not approved of this, because from her perspective a student teacher could not be responsible for students outside the school. From the teachers' perspective, an instructor was in no position to give orders about matters concerning the theme. This very turning point could also be characterized as collision between the expanding object and restrictive rules of the activity system .The tension between opening up the classroom vs. ensuring the safety of the students discussed here was the result of the fact that while the teaching should have been largely outward-oriented and involved the close surroundings of the school, the administrative rules did not allow students to go outside the school without their teacher.

In 1994, widening of the object was connected largely with the elements that three teachers who participated in both the 1993 and 1994 teams attempted to bring from the first year's team model to the second year's model, or reconsidering of these elements in the evaluation phase. In the planning phase, widening of the object included spatial expansion of the object. The teachers had attempted to enlarge the teacher collaboration by joint planning of teachers and joint presentation of course outcomes. Neither planning nor presentation of course outcomes, however, was realized in practice during the elective course period. In the evaluation phase, as in-depth expansion of the object, the teachers attempted to reconceptualize the idea of group work of students. The teachers reflected on their pedagogy emphasizing cooperative learning as a critique in implemented pedagogy of student group work. As spatial and in-depth expansion, the teachers elaborated the idea of elective courses to include the idea of shared theme and joint planning and work-study outside the school.

In 1994, the crucial turning point of the planning phase led to disintegration of the object. The teachers decided that they would implement some elective courses under theme "town" but that the others would be implemented as separate courses. During this very turning point, the three teachers from the previous year's team attempted to bring the idea of shared theme from the theme-working model into the design of the elective courses. The team members discussed a possible broader theme for the elective courses. Some of the

teachers had already taught the "we build a town" theme in their teaching and for this reason they did not want to use it again. As a result of this discussion, the object, elective courses, fragmented.

Another crucial turning point led to narrowing of the object since the teachers decided not to open up the classroom by acquiring more work-study places for the students. The members of the previous year's team attempted to bring the idea of student work-study outside the school into the discussion, however, the team concluded that there was no need to look for more work-study places because the groups appeared to be small enough.

The disintegration of the object may be connected with the organizational change in the school. The task of the team was to plan elective courses, and the idea did not include a shared theme. The narrowing of the object may be connected to the organizational change in the school as well. The team evaluated the need for work-study outside the school that was based on group sizes of the students rather than on a pedagogical idea of the team. The team members decided not to acquire work-study places, since the group sizes of the students were small enough. As a result, implementation of the elective courses was traditional and classroom-centered.

How should these two differing collaborative planning processes be interpreted? One important thing is that the turning points of object formation of the planning process of Local Community theme included *two different levels*. At the general level, the turning points were connected with the definition of the concept theme-working and at a more specific level, to the construction and evaluation of the Local Community unit. From the viewpoint of collaborative learning, it is noteworthy that the team had theoretical and ideological discussion at the beginning of their learning cycle and that it defined the concept of theme-working. The definition occurred in reflection against the different model of Team B. Joint meeting sharpened the differences in perspective of these two teams and thus led the team under study to settle for a model of their own. After defining theme-working, the team planned and implemented the concrete Local Community theme. During the evaluation phase, it was possible for the team members to evaluate how the idea of theme-working had functioned and to elaborate it further.

The turning points of object formation during planning of the elective courses *included only one specific level*, namely the level of the planning of the courses. In contrast to the 1993 team, the 1994 team began to plan the elective courses without discussing or defining the idea of the courses. It took its task to plan elective courses as given task from above. The object did not include the general level of defining the concept elective courses; it was not discussed in the meetings. All eight teachers planned their courses by themselves and there was little need for ideological discussion of the pedagogy.

These different levels of turning points of both years can be interpreted in the light of Argyris & Schön's (1978) notion of single-loop and double-loop learning which they distinguish in organizations. In single-loop learning errors are recognized and corrected with the stable basic assumptions and norms of the organization as a criteria, thus trying to return to the normal state. In double-loop learning, the organization corrects errors while questioning and changing its basic assumptions and norms. During the learning process of the Local Community theme, the double-loop type of learning (learning in two different levels levels: new concept and model forming and the concrete planning of the unit) could be identified more often than during the planning process of the elective courses (one specific level: the coordination of the courses), in the sense that Argyris & Schön meant by it.

When interpreting the findings of collaborative learning between the planning processes of 1993 and 1994, it is important to remember that the evolution of teamwork in the school was discontinuous in that the organization of teacher collaboration changed. This change directs one's attention to the relationship between the teams and their organizational structures. In 1993, the concept of team was a pedagogical concept, while in 1994, the concept of team was pedagogical-administrative. The 1993 team was relatively autonomous and separate from the rest of the school. The planned object, the Local Community unit was shared by the team members and the observed curriculum unit was open and networked.

In 1994, collaboration of the teachers enlarged as the entire school was restructured into teams as an administrative measure, however, the object of the team fragmented into the separate elective courses and the observed curriculum unit became fragmented and classroom-centered. The task of the team was given from above. The three teachers who had

also been members of the previous year's team attempted to bring ideological discussion of shared theme and work-study into the team but did not succeed in transferring those ideas during the studied elective course period. It is noteworthy, however, that in the evaluation phase the team reconsidered the idea of shared theme and decided to implement these ideas during the next elective course period.

This chapter has explored what kind of an ongoing re-formulation of the teams' objects there had taken place and has explained it as different levels and outcomes of collaborative learning. From the activity-theoretical viewpoint, I have developed a methodology for describing and analyzing collaborative learning within the team by identifying the turning points of object formation with its operational dimensions. Next, I will move on to examine the external perspective of teamwork, namely network building of the teacher teams by asking how they will use their network contacts to plan curriculum units.

9. TEAMS AS NETWORK BUILDERS: ANALYZING THE USE OF NETWORK CONTACTS

In the preceding chapter, I explored learning and development within the teams. The challenge of this chapter is to explore the external perspective of the teams, in other words, the teacher teams as network builders. I will examine here how the teacher teams develop and use their network contacts to plan curriculum units, and how do the teacher teams use network contacts to enhance their own learning opportunities and the students' learning opportunities in the school and in the environment in which they live. As Resnick (1987) states, there has not been much continuity between what one knows outside the school and what one learns inside it, and knowledge acquired outside the school is not well used to support learning inside it.

I will examine the teacher teams as network builders in development. I will explore what conditions will break the boundaries of teams and the traditional work patterns of teachers as individual planners and implementators of lessons. I am also interested in what is the relation between the two different team concepts and the use of network contacts by these two teams. The methodological question of this chapter is how the work of teachers, including the planning and implementation of curriculum units, can be described and analyzed as an evolving network.

As stated earlier, there is not much research on networks of teachers in school setting (as exceptions, see e.g., Lieberman & Grolnick, 1996; Pennell & Firestone, 1996). For this reason I have had to develop my own method to analyze the network-building of the teacher teams. I use multiple, and complementary types of data, namely interviews with the teachers, discourse data collected during the planning meetings of the teams, and observation data collected during the implementation of the curriculum units. (I have also examined the network contacts of the teacher teams in other papers, see Kärkkäinen, 1998b and 1998c).

Next, I will present the methodology of the study, my own framework for the analysis of the network contacts. In this context, I will describe the three types of data. Then, I will present the findings of teacher teams as network builders, and compare the results of the three types of data. Finally, I will discuss the findings on the teacher teams as network builders in terms of methodological implications, and substantial

findings related to the different team concepts, and the possibilities of breaking the rigid patterns of traditional teaching work.

HOW TO ANALYZE THE NETWORK CONTACTS OF TEACHER TEAMS - METHODOLOGICAL FRAMEWORK OF THE STUDY

In network research, there are numerous ways to analyze networks. For example communication networks have been analyzed by quantitative and often quite static structural models (Milroy, 1987; Rogers & Kincaid, 1981). Social network research has studied how the resources of unofficial social networks between people can be utilized (e.g., Pilisuk & Parks, 1986). These social networks (see e.g., Scott, 1991) have been commonly described as sets of nodes or actors whose internal structures are assumed to be homogeneous "black boxes" (cf. Burt, 1980). The researchers of social networks have been interested in issues such as centrality and power in the organizational networks (Ibarra, 1993; Krackhardt, 1990). The concept of a network has often been used as a metaphor to depict complex social systems. For instance, researchers have often studied social support networks using the concept of a network as a metaphor (e.g., Arnkil, 1991; Suitor & Keeton, 1997). The trend of social network research in the classroom has been concerned mostly with sociometric studies of classroom students (see e.g., Leinhardt, 1972), in which students have been asked whom they like best or would prefer to do something with, rather than with whom they actually spend time (cf. Granovetter, 1973).

When studying teacher teams as network builders, one must first define the concept “network.” In his classical article “The Strength of Weak Ties,” Mark Granovetter (1973) has attempted to create a sociological network theory. He argued that the analysis of processes in interpersonal networks provides the most fruitful micro-macro bridge. Through networks, small-scale interaction becomes translated into large-scale patterns, and these, in turn, feed back into small groups. The research question of Granovetter’s study concerned how workers find out about new jobs. The study emphasized the nature of the tie between the job-changer and the contact-person who provided the necessary information. Granovetter (1973, p. 1361) defined the "strength" of an interpersonal tie as following: “the strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which

characterize the tie". As for the data and methods, in a random sample of recent professional, technical, and managerial job changers living in a Boston suburb, Granovetter (1973) asked those who found a new job through contacts (N=54) how often they saw the contact around the time that he or she passed on job information to them. He used this as a measure of tie strength. The following categories for frequency of contact was used: often = at least twice a week; occasionally = more than once a year but less than twice a week; rarely = once a year or less. One surprising result of Granovetter's (1973) study was that weak ties were the most useful and precious for individuals, and also the most useful for the integration of communities. Strong ties instead lead to overall fragmentation and social isolation. One aspect of this study, which he himself criticized is the fact that considering only the strength of ties ignores the issues related to their content.

Another type of network research can be identified as the study of enterprise- or organizational networks (see e.g. , Nohria & Eccles, 1992). Nohria & Eccles (1992) point out that the term "network" has become the vogue in describing contemporary organizations from manufacturing firms to service companies. The problem of the research of organizational networks is that the term "network" is used in a metaphoric and abstract way to describe the observed pattern of organization. It is often used normatively to advocate what organizations must become if they are to be competitive in today's business environment. Enterprise network research has largely concentrated on the study of the subcontracting networks of enterprises (Smith et al. , 1995). The study of enterprise network has not much explored the nature of interaction within the organization or between the organizations.

In the context of teachers' work, Lieberman & Grolnick's (1996) study on reform networks and Pennell & Firestone's (1996) study on changing classroom practice have used the word network as a metaphorical expression as well. In their study of 16 reform networks, Lieberman & Grolnick (1996) defined the concept of a network with the help of five "key" ingredients, including (1) a strong sense of commitment to the innovation, (2) a sense of shared purpose, (3) a mixture of information sharing and psychological support, (4) an effective facilitator, and (5) voluntary participation and equal treatment.

For posing research questions, Lieberman & Grolnick (1996) first interviewed the leaders of three of the networks. These interviews led them to seek answers to such questions as: (1) How do these networks evolve and take shape, and how do they build commitment to common purposes?, (2) Who leads these networks and what is the nature of their work and their learning?, (3) What activities bind people together in these networks and how are they organized?, and,(4) What tensions and dilemmas do they face in the process of developing and sustaining these entities? After posing the research questions, Lieberman & Grolnick (1996) expanded their inquiry to gain additional information from other total of 16 educational reform networks. They also collected the newsletters and print materials of these networks to expand their understanding.

Lieberman & Grolnick (1996) found five descriptive themes, that were a source of recurrent negotiation regardless of the differences of the networks. The sixteen networks shared organizational themes relating to: (1) purposes and direction, (2) building collaboration, consensus, and commitment, (3) activities and relationships as important building blocks, (4) leadership as cross-cultural brokering and facilitating, and (5) dealing with the funding problem. Methodologically, as network research , Lieberman & Grolnick's (1996) study, however, lacks in analytical tools. Substantially, these researchers are interested in teacher networks but do not define the nature of network contacts. Thus, in this sense, the analysis of the nature of the teacher networks remained superficial.

Pennell & Firestone's (1996) study, which was conducted in Vermont and California, was entitled "Changing Classroom Practices through Teacher Networks: Matching Program Features with Teacher Characteristics and Circumstances." The states of California and Vermont sponsored network programs with different goals. California sought to develop the instructional and leadership capacities of teachers across subject areas, while Vermont's networks were focused on supporting the implementation of the state's portfolio assessment. Despite this difference, both were attempting to change teachers' classroom practices. The research problem was how the work contexts and assumptions teachers bring to these programs interact with the program goals. They explored how this interaction affects teachers' views of teaching and learning and the strategies and materials they use in the classroom. As for the data and methods, Pennell & Firestone

(1996) conducted semi-structured interviews with sixty-nine teacher participants and their twenty-five principals, forty network leaders and project directors, and thirteen state-level officials in the two states, as well as naturalistic observations of fourteen events, five Vermont network meetings, and thirty-six teachers' classes. They used retrospective reports to assess changes in classroom approach and classroom observations as confirmatory evidence. For the interpretative analysis, they used within-case analyses to identify relationships between personal-contextual characteristics and program features as well as a cross-case analysis to identify common themes and patterns of relationships across cases.

Pennell & Firestone (1996) analyzed how four factors, namely (1) teacher beliefs; (2) teacher experience; (3) social influences; and (4) practical circumstances, affected teachers' program experiences. They found that variation in teachers' beliefs, background experiences, social influences, and practical circumstances affected their evaluations of programs, their desire to make changes in their classrooms along constructivist lines, and their willingness to continue participating in programs and leadership roles. However, Lieberman &Grolnick's (1996) and Pennell & Firestone's (1996) studies do not provide us with analytical tools. They did not define the nature of network contacts.

The teachers of the present study built their network contacts as a team. Lipnack & Stamps (1993) have introduced the concept of a teamnet. According to them, organizations use internal teamnets to bridge barriers inside their organizations, and external teamnets to bridge boundaries with outside actors, for instance customers. I will analyse the teacher team's network contacts as evolving during the planning processes. As shown above, the social network study has concentrated on studying individuals by formalizing the network contacts. The problem of enterprise or organizational network study comprises that it has mainly concentrated on studying networks between organizations or networks within an organization, on a rather abstract level, and it has not concentrated on interaction between the individuals or groups. The two studies on teacher networks (Lieberman & Grolnick, 1996; Firestone & Pennell, 1996) produced interesting findings but in the methodological sense they never defined the network contacts. There was a gap between the interest toward teacher networks and the empirical methodology to define network contacts . My own research on the teacher teams' networks will find its place between the social

network study and the enterprise network study. I will concentrate on teacher teams' networks, not those of an individual teacher or school organization only,. My data is many-faceted and interactional, and I want to interpret my findings from the viewpoint of organizational development. From the viewpoint of a teacher network study, I will go even further in reducing the gap between the interest on teacher networks and the empirical methods of studying them.

All contacts of a team can not be automatically understood as network contacts. Jansson, Saqib, & Sharma (1990) point out that the complexity of network description, a temporal aspect, and what is meant by a contact are the principal methodological problems in network study. I will present the analysis-framework of the network contacts of my own study, in Table 9.1.

Object-orientedness	*Outward-orientedness*			
	Interaction within a team	Intra-organizational network contacts	Inter-organizational network contacts	
	Team	School	Home	Out-side world
Coordination	1. Coordi-nates the unit together	4. Asks for help/information 5. Gives help/information 6. Asks to tutor the students 7. Students make the contact		
Cooperation	2. Does together 3. Plans together	8. Discusses/negotiates 9. Disagrees		

Table 9.1. The analysis-framework of the network contacts of this study

In the first column of the table, network contacts are examined as object-oriented (cf. Miettinen, 1998b). Miettinen (1998b) depicted how the object was evolving, the representations of the object were evolving when the network itself was evolving from the viewpoint of cultural historical activity theory. He analyzed the object construction of the network as a complex and continuous effort by the research group to create and maintain the purpose of their activity. Here, the object-orientedness of the activity means that the network contacts are studied in relation to the planning processes of the Local Community unit and of the elective courses, not in relation to any random contacts. In other words, only those contacts which the team members made as they

planned and implemented the Local Community theme in 1993, and the elective courses in 1994, were considered.

In the object-orientedness dimension, I have theoretically distinguished the concepts “coordination” and “collaboration,” borrowing them from Engeström (Engeström et al., 1991). Engeström et al. (1991) defined coordination as the normal flow of interaction in which the actors coordinate but do not share object of interaction. In practice, coordination means here that the actors coordinate the curriculum unit but do not have a shared, common object, planning of concrete theme. Engeström et al. (1991) defined cooperation as interaction in which the actors focus on a shared object with mutually acceptable ways of conceptualizing and solving it. Cooperation in my study means that the actors plan and share the common contents of a curriculum unit.

The next four columns in Table 9.1. describe the expansion of the subject in networking, in other words, the outward-orientation of the team. The network expands from the inner circle of interaction within the team to the circles including network contacts within the school (intraorganizational network contacts, cf. Lipnack & Stamps, 1993), contacts in relation to the students’ homes, and the outer circle thus encompasses the contacts in relation to the outside world (interorganizational network contacts, cf. Lipnack & Stamps, 1993). In other words, the columns describe the entire scope of the teams’ network contacts. Theories of situated learning (Lave & Wenger, 1991) and activity theoretical studies of alliances between the school and the outside world (e.g., Miettinen, 1998a; Moll & Greenberg, 1990) also stress crossing the boundaries of the classroom and the school. There has recently emerged literature on improving schools through the collaboration of teachers and parents (Hughes, 1994; Hendry, 1994). In this literature, evaluation of students’ learning through the collaboration of teachers, parents, and the students themselves is understood as a central part of school work.

I shall use the concept ”interaction contact” to describe the contacts of the members within the team, and the concept “network contact” to describe the team members’ outward-oriented intra- and interorganizational network contacts. I will analyze, in parallel, the interaction categories within the team, and the team’s outward-oriented network categories, since the point of departure of the study is that the

nature of interaction within the team and the nature of the team's outward-oriented network contacts are closely related to each other.

In Table 9.1., there are presented in addition the nine different interaction and network contact categories identified empirically. As coordinative interaction within the team, the interaction category (1) "coordinates the unit together" was empirically identified. The category means that the teachers do not share a common object of planning, and that each teacher plans the content of the unit by herself or himself. Within the team, the teachers coordinate issues like how to title their units or how to divide the students into groups. As cooperative interaction within a team, the interaction categories (2) "plans together" and (3) "does together" were identified. These categories signify that the teachers plan the shared objects together, e.g. certain subthemes of the Local Community unit and that they may also teach the subthemes together.

As outward-oriented coordinative network contacts within the school, in relation to the students' homes, and in relation to the outside world, there could be identified the categories (4) "asks for help or information," (5) "gives help or information," (6) "asks a person or a members of an organization to tutor the students," and (7) "students themselves make the contact." Category (6) includes those cases in which, for instance a teacher asks someone to tutor the students during their work-study period. Category (7) was distinguished in cases in which the teachers mention that the students themselves were in contact with someone outside the classroom, in order to set up interviews for a theme or a course, for example. All these categories include the notion that the contacts between the actors are one-sided request or responses in which the actors do not share a common object of planning.

As outward-oriented cooperative network contacts, there could be identified categories (8) "discusses or negotiates certain problems or issues with someone," and (9) "disagrees." These categories include the notion that the actors of network together shape a shared object, or disagree about a shared object.

It is noteworthy that the network contacts of the teacher teams as object-oriented can be understand as having two levels. First, the studied network contacts were always connected in relation to the planning processes of the Local Community unit and of the elective

courses. Second, on a more specific level, the network contacts may be connected to a shared object in mutually acceptable ways. Thus the actors of network did plan and share the common contents of a curriculum unit. My starting assumption is that building a network requires the use of all nine kinds of contact categories both within the team and beyond it, and also flexible movement between the use of coordinative and cooperative categories. Thus, coordinative network contacts can be interpreted as being potential, and unavoidable part of network building, although the network contacts do not yet focus on mutual problem solving.

The nine categories outlined above can be understood as instruments of teacher teams for network building outside the classroom. Viewing these categories as instruments, they will reveal the developmental potential of the team. For instance, it is useful to examine how the team will use the cooperative and coordinative instruments: is there an absence of use of one instrument, or a one-sided use of another? One can also examine what kinds of instruments are used in the planning of the curriculum units, what kinds of contacts there are to the students' homes, whether the instruments are sufficient, whether they are routinized, and whether they are generally understood as instruments by the team.

The examination of the two planning processes enables here, first, the examination of the relationship between the two different team concepts regarding the use of network contacts by these two teams, and, second, the testing of the research methodology in the sense of how well the analysis-framework of the network contacts and the nine elaborated categories identify the differences in network building, in each year. It is possible to examine how the network contacts of the teachers changed as the organization of the teachers' collaboration pattern was changed within the school.

One might ask how it is possible to compare two such different teams and planning processes with one another. This question directs our attention to the relationship between the teams and their organizational structures. In the background of this question lies traditional conception, according to which results of an analysis are only comparable when most of the variables of the study remain the same (Fox, 1969). Due to the nature of the study design, my analysis will not rely on statistical generalization procedures. Rather, I will show the

different use of network contacts by the two different teams not only in terms of quantity but also in terms of quality (cf. Lonkila, 1997). The problem of this traditional idea of comparability in the study of teams is that the very founding of teams typically puts the organization into motion (cf. Gersick 1989; Katzenbach & Smith, 1993). If one studies the networks of teams in development, one can not expect that the organizational structure will remain stable.

The data were collected in three different ways. Here, I will focus on the methodological questions in regard to the differences of the three types of data. Moreover, one may ask how I can compare the three different types of data with one another. Here, I try to reconstruct the picture of two teacher teams as network builders based on multiple complementary types of data. To depict, in a valid and reliable way, the formation and use of a team's network contacts, it is necessary to use different kinds of data collection methods, and to compare and combine them. Each type of data has certain restrictions when used alone, but when combined and compared with a different type of data, it allows the drawing of more valid and reliable conclusions. The aim of comparing and combining the three types of data in triangulation was therefore adopted to enhance the credibility of the study (Guba & Lincoln, 1985).

The data was collected in different phases of the planning processes of the curriculum units. Figure 9.1. presents the timing of the collection of data.

THE PLANNING PROCESS OF THE LOCAL COMMUNITY THEME IN 1993:

Time: 8/14 8/17 8/19 8/19 8/25 8/27 9/1 9/7 9/15 9/22 9/29 10/13

Data:
1Videotapes: I_____II_____III__IV_____V_____VI_____VII_____VIII_____IX_____X_____XI_____XII
on meetings
Phases based on meetings: *Idea of theme-working* | *Planning the Local Community theme* | *Implementing and evaluating the Local Community theme and theme-working*

2. Interviews: In the beginning : 5 teachers — In the end: 5 teachers

3. Shadowing: During the implementation of the theme (8hours)

THE PLANNING PROCESS OF THE ELECTIVE COURSES IN 1994:

Time: 10/16 10/31 3/11 12/20

Data:

1 Videotapes: I_____ II_____III_____IV
on meetings
Phases based on meetings: *The planning of the elective courses* | *The evaluation of the elective courses*

2. Interviews: In the beginning: 8 teachers — In the end: 8 teachers

3. Shadowing: During the implementation of the courses (16 hours)

Figure 9.1. The timing of the collection of data in relation to the progress of the planning processes in 1993 and 1994

As the figure shows, the different kinds of data complemented each other. They do not describe one and the same thing. The videotaped meetings describe the planning processes of the theme and the courses; the interviews describe the conceptions of the teachers in regard to the team's network contacts at the beginning and end of the planning process; and the shadowing data describe the nature of interaction, as well as network contacts used during the implementation of the theme and the courses.

The first type of data consists of interviews with the teachers, each year, at the beginning and end of the planning processes of the curriculum units. The interview data give a picture of the network contacts of the teachers in light of their memories. The interview is a specific form of conversation (Kvale, 1996; Mishler, 1986). Memory may sustain a certain social order and orients towards future activity. On the other hand, it is possible that an interview reflects an old activity, not necessarily the actual activity (e.g., R. Engeström, 1991). The participants may also have a tendency to give a positive impression of themselves to the interviewer (e.g., Van Maanen, 1979).

Keeping in mind these limitations of the interview data, the aim of the interviews was, first, to identify the nature of the interaction categories within the team based on the teacher team members' conceptions. I systematized the conceptions of the teachers concerning the nature of interaction within the team (categories 1-3, in Figures 9.2. and 9.2.). In the construction of these conceptions, I utilized a phenomenographic approach (Marton, 1981). In phenomenography, the aim is to find varying conceptions of a certain phenomenon, conceptions that are qualitatively different from each other. These conceptions are systematized and described. The outcome of phenomenographic analysis is a set of categories for the description of a phenomenon. Conceptions and ways of understanding are not seen as individual qualities.

When one forms a conception category ina phenomenographic manner, it is always a synthesis of different factors. One interview excerpt cannot describe the forming of a conception category in a complete way. However, below, I will attempt to describe the forming of categories based on a few excerpts from the interview data.

As regards coordination within the team, the identified conception category was: "the team had coordinated the courses together." Excerpts from the interviews of Hanna and Pekka, in 1994, illustrates the nature of the coordinative conception.

Hanna: *We have divided together the students into groups. I have negotiated the course with the principal.* (12/8/1994)

Pekka*: Everybody has planned their own courses.* (12/8/1994)

The coordinative task of the team had been to divide students into groups. In spite of that, the teacher had herself negotiated with the principal. The coordinative interaction category (1) "coordinates the unit together" was identified.

As regards cooperation within the team, the identified conception category was: "The team had planned the themes cooperatively, taught cooperatively only when doing the newspaper and the botany videos." Concrete examples illustrate the identification of the conception category from the interview with Leila and Pekka at the and of the planning process of the Local Community theme.

Leila: "*We had these weekly planning meetings in which we did plan together, but actually you did not see much of what the others were doing. And then we watched these video shots that we had made together, there were these plant-people, history-group people, and then art-group people and the ones who videotaped it and there was such, well, there was, and then Riku and Pekka were there. So I think we should invest in gathering the outcomes of the themes in the future".* (9/25/1993.)

Pekka: *Everybody was ready to participate in planning. What I expected in a certain way, was cooperation during teaching. We cooperated when doing the videos, but otherwise everyone rather had to do their own teaching.* (9/25/1993)

As the excerpt above shows, this conception involved self-critique with regard to the implementation of the Local Community theme: Leila and Pekka had expected more interaction and sharing in teaching during the implementation of the themes, and Leila suggested that the team should plan more carefully to gather the themes together. The cooperative

contact categories (2) “plans together” and “does together” within the team were identified.

Second, I selected from the interview responses all the mentions of the network contacts which were connected to the planning processes of the curriculum units of both years. According to this logic, I did not consider as network contacts those contacts which the team members mentioned that did not connect with the planning or implementation of the Local Community theme or the elective courses period. The potential outward-oriented network contacts were also identified. The potential contacts signify, in the interview data, the contacts which the teachers mentioned at the beginning of the planning process but which at the end of the planning process they reported as not having taken place. Thus, the advantage of the design of the beginning and ending interviews is that it was possible to verify the implemented network contacts. Based on the teachers’ mentions of their network contacts, I described the expansion of the subject, that is, the network actors in the teachers’ work, namely within the team, within the school, in relation to the parents, and in relation to the outside world (categories 4-9, in Figures 9.2. and 9.3).

A concrete example (2) of Anne's interview exemplifies the identification of the network contact categories extending outward from the team.

Anne: *Well. For instance with the kitchen, they have themselves a freedom to define the frames then that they take at most four pupils at a time. They only wished they would be those kids who really can do something, and are interested in it*. (9/29/1993)

Above, contact category (6) "asks the person to tutor the students" was identified. Anne asked the school kitchen workers to tutor the students during their work-study. Notice that the contact was one sided in that the teachers and the kitchen workers did not negotiate together about the contents of tutoring. As Anne put it, “they have themselves a freedom to define the frames.”

The second type of data consisted of the team discourses in team meetings. I videotaped all meetings of the teacher teams. The planning process of the Local Community theme consisted of 12 videotaped meetings (approximately 0.5 hours each). The planning process of the

elective courses consisted of four videotaped meetings (approximately 1 hour each). The meetings data were used to examine how the curriculum units evolved as networks.

The challenge of the analysis of the team meeting data is to examine how the network building of the teacher teams shaped and developed the planning processes themselves. Here, the analysis focuses on the question of how network contacts develop during the planning process. The planning processes of both years could be divided into certain phases, and an analysis of the evolution of the network contacts between the actors was done within each of these phases. First, I identified the nature of the interaction within the team (categories 1-3). Second, from the meetings, I selected all the topics concerning network contacts which were connected with the planning process of the curriculum units of both years, and I identified the actors of the network and contact categories (categories 4-9) between the actors. As stated in Chapter 6, there was a total of 149 topics in the 1993 meetings, and 48 of them the team discussed their network contacts. In 1993, in the phase of constructing the idea of the theme-working model and the Local Community theme, the team discussed its network contacts altogether in 14 topics;, in the phase of constructing the plan of the Local Community theme, the team discussed its network contacts in 16 topics; and in the phase of evaluation of the Local Community theme, the team discussed its network contacts in 18 topics. In the 1994 meetings, of a total of 62 topics the team discussed their network contacts in nine of them. In 1994, in the phase of constructing the plan for the elective courses, the team discussed its network contacts altogether in four topics, and in the phase of evaluation of the elective courses, the team discussed its network contacts in five topics.

The potential contact categories were also identified. In the meetings data, potential contacts mean that the teachers said that they were going to make a certain contact but had not, as yet, made it.

A concrete example (3) of the meeting discourse data illuminates the identification of the network contact categories. In meeting 2/1993 (topic 21/22) the team constructed the history subtheme as an outward-oriented activity.

623 Anne: *Then they* [students] *could go and interview their parents, or something like that.I mean that how, or then...*

624 Pekka: *Some teaching material about this place I could find in the museum*
625 Anne: *Yes, it would surely be rather interesting to see what the map has been like, we could have something like that. But, another thing could be worth while to ask, namely [underlines a name in her notebook] a historian is very willing to do something like this.* (Meeting 2/1993, topic 21/22.)

As the excerpt shows, "plans together" contacts among the team members can be identified. As for the outward-oriented contact categories, potential coordinative network contacts "students themselves make the contact" (Anne's turn 623 in relation to the students' homes), "asks a person to tutor the students" (Pekka's turn 624 in relation to a museum), and "asks for information" (Anne's turn 625 in relation to a historian) could be identified.

The third type of data was the observation data in and around the classrooms during the implementation of the curriculum units. The observation of the implementation of the curriculum units is termed here as "shadowing" (Sachs, 1993). According to Sachs (1993), shadowing is a set of methods oriented toward collecting data about on-the-ground phenomena over some period of time. The aim of shadowing is to capture the detailed conversations intertwined with activities. Shadowing, in this study, means that the researcher using a video camera followed the team members while they were implementing the planned units. The implementation of the Local Community theme consisted of eight hours of videotape, and the implementation of the elective courses of 16 hours. The question asked through the observation data was: "what kind of interaction can be identified among the teacher team members and what kind of network contacts did the teachers and the students use during the implementation of the units? "As for the limitation of the shadowing data, I could not videotape the overall implementation of the Local Community theme or the elective courses in 1994. In 1993, I videotaped most closely Pekka's history group. In 1994, I shadowed in two different settings, namely in Pekka's "hand-puppet" group, and in Anne's "Christmas decoration" group.

The shadowing captured, first, the interaction between the students and the teacher in the classrooms in the act of constructing the network contacts in order to obtain information for the theme. This was an

interesting type of networking which, probably, could not have been identified without shadowing.

Second, through the shadowing data, "knotworking" (Engeström et al., 1999) cooperation during the implementation of the unit was analyzed. Engeström et al. (1999) have defined knotworking as a specific kind of negotiated collaboration across organizational boundaries in which a problem is solved collectively and as immediately as possible by the people involved in the problem. The notion of knot refers to rapidly distributed and partially improvised orchestration of collaboration between otherwise loosely connected actors. The notion of knot means that separate activities and contexts are temporarily tied together, then untied and often re-tied again in a series of collaborative efforts.

From the shadowing transcripts, all the topics connected to these two types of networking during the implementation of the curriculum units of both years and to the actors of the network were selected. In 1993, the shadowing transcripts of the history theme included a total of 34 topics in which the teacher and students together constructed the network contacts of the students, in 15 of them. In 1993, there could be identified one knotworking topic. In 1994, there could be identified ten knotworking topics. No network contacts could be identified for the "hand puppets" course in which the teacher and the students would have constructed together the network contacts for the students. Contact categories (1-9) were identified as well.

A concrete example (5) of the first type of shadowing data (9/9/93, topic 2/16) below describes the nature of network building within Pekka's "history" theme.

30 Pekka: The sources may be difficult, but I don't believe it is any reason, however, we'll find the information when we start searching and digging and the original sources of information. And boys, come here. Your group is Local Community 1900 to 1980, what kind of things? Now, just questions, about what this community has been (...). I´ll give you this day to make the questions, this day, in other words these two hours, next time we'll go out to interview already, so you'll have to do the basic work for the interviews (...) Where can you get started? You can start where it is easiest.
33 Student 2: *Mom and Dad.*
34 Pekka: *Start with your immediate circle.*

Above, the outward-oriented contact category "students themselves make the contact" in relation to the students' homes can be identified. In the excerpt, Pekka tried to get the students to think where they could find information about local history.

Concrete example (6) (from shadowing (8/11/94, topic 3/10) data describes the nature of knotworking cooperation between Anne and Riku during the implementation of the unit.

31 Riku: *Now I need your help (...).*
32 Anne: *In craft?*
33 Riku: *Yes.*
34 Anne: *OK*. (leaves with Riku to his classroom)

In the above excerpt, Riku, a teacher who was not a member of the studied team, walked into the classroom of Anne, who was a member of the elective courses team, and asked for her help in craft work. Anne had time to help Riku and left with Riku to his classroom. From the viewpoint of Anne, the contact category "gives help" could be identified.

In reporting the findings of each three types of data by the help of the layout pictures (Figures 9.2-9.7), the coordinative categories are marked with a dashed line, the cooperative categories with a solid line and the potential contacts with a dotted line. In the figures, tables showing the occurrence of network contacts (frequencies and percentages) are presented.

THE 1993 AND 1994 TEAMS AS NETWORK BUILDERS

1. THE INTERVIEW DATA

In 1993, at the end of the planning process of the Local Community theme (after the implementation of the unit), there were identified two conceptions: Conception (1) was: "The team had planned the themes cooperatively but taught cooperatively only when doing the newspaper and the botany videos"; Conception (2) was: "The team had planned the themes cooperatively, and each teacher had implemented the sub-themes individually." It was noteworthy, that conception (1) included

self-critique about the nature of interaction within the team. Some teachers had expected more interaction and sharing in teaching during the implementation of the themes. One teacher suggested that the team should have planned the gathering of the themes together more carefully.

At the end of the implementation of the elective courses, in 1994, there were also found two conceptions. Conception (1) was that " the team had coordinated the courses together, and only the leaders of the same kind of courses had planned the courses together." Conception (2) was that "the team had coordinated the courses together."

Figures 9.2. and 9.3. below present the nature of interaction within the team (categories 1-3) and the team members' outward-oriented network contacts (categories 4-9) based on the identification from the interviews of all the mentions of contacts that were connected to the planning and implementation of the Local Community theme and the elective courses.

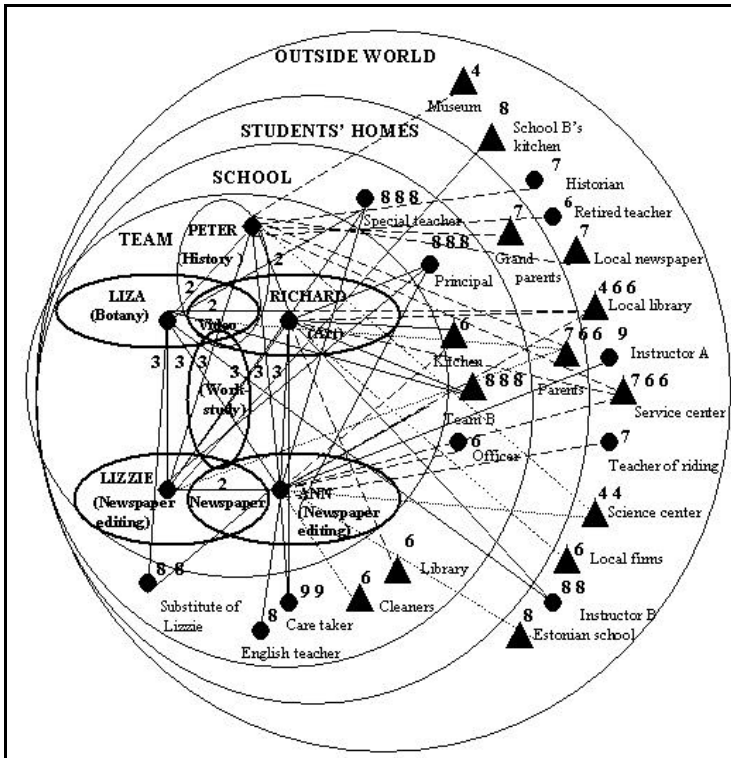


Figure 9.2. TABLE

Outward-oriented contact categories	School	Homes	Outside world	Altogether f(%)
Coordination:				
4. Asks for information	-	-	4	4 (9%)
5. Gives information	-	-	-	-
6. Asks to tutor the students	4	2	6	12 (30%)
7.Student makes the contact	-	2	4	6 (15%)
Together	*4*	*4*	*14*	*22 (54%)*
Cooperation:				
8. Discusses	12	-	4	16 (39%)
9. Disagrees	2	-	1	3 (7%)
Together	*14*	-	*5*	*19 (46%)*
Altogether	**18 (44%)**	**4 (10%)**	**19 (46%)**	**41 (100%)**

Figure 9.2. The nature of interaction within the team, and the outward-oriented network contacts of the team members, in 1993, during the planning process of the Local Community theme, as based on the interview data

In 1993, within the team, the nature of interaction was identified as cooperation during the planning of the Local Community theme. Six "plans together" contacts and four "does together" contacts were found. Anne and Liisa did the newspaper together, and Leila, Pekka, and Riku did the video about botany and history together with their students.

As for the outward-oriented network contacts, the teachers mentioned frequent network contacts, out of a total of 41 contacts of all. As for the instruments for making contacts, the teachers reported that personal discussions were the most frequent way to make a contact (15 such contacts). Phone calls were reported as the second frequent way (7 such contacts), and interviewing by the students as the third frequent way students (7 such contacts).

It is noteworthy that the mentioned contacts were distributed in almost equal numbers between ones with the outside world (altogether 19 contacts of which 4 were potential only) and ones within the school (altogether 18 contacts of which one was potential only). Four contacts in relation to the students' homes could be identified in which two were potential only. The teachers said that the contacts with the students' homes were made by the students themselves.

54 percent of the total number mentioned contacts were coordinative network contacts, and 46 percent were cooperative ones. The most frequent contact category included cooperative "discusses or negotiates" contacts which constituted 39 percent of the total. These contacts were made mostly within the school. This contact category was connected with the elaboration of the team model and the pedagogical idea of the Local Community theme. The second most frequent contact category included coordinative "asks a person to tutor the students" contacts which constituted 30 percent of the total number of network contacts. These network contacts were made to enhance the acquisition of information and the learning possibilities of the students. This contact category did not include reciprocity in the sense that that the teachers and network actors would have negotiated with each other about the content of the tutoring of the students. The coordinative, outward-oriented type of contact "students themselves make a contact" was the third most frequent contact category (15 % of all contacts). Interestingly enough, the cooperative, outward-oriented type "disagrees" included altogether three contacts (7 % of all contacts).

As for the number of network contacts of the 1993 team members, Anne had 14 outward-oriented network contacts, Riku ten, Pekka eight, Leila five, and Liisa four. Thus, based on the quantity of network contacts, Anne had the most central position in the network (cf. e.g., Brass et al., 1992). Anne used versatile network contacts as instruments to plan and implement the Local Community theme and the theme-working model. Her network contacts were most frequently "ask a person to tutor the students" or "discusses" contacts but she also reported "disagrees," "asks for help," and "student makes the contact" links. As for the different uses of network contacts as instruments of planning and implementation of the unit, Leena's network contacts for instance were mostly "discusses" links devoted to the shaping of the idea of theme-working or the Local Community theme while Pekka's network contacts were mostly connected with the shaping of the learning possibilities of the students, including "student makes the contact," "ask a person to tutor the students," or "asks for help" links.

Figure 9.3. presents both the network contacts of the team members and the network contacts which the outside leaders (parent and two assistant teachers) mentioned during the planning process of the elective courses in 1994.

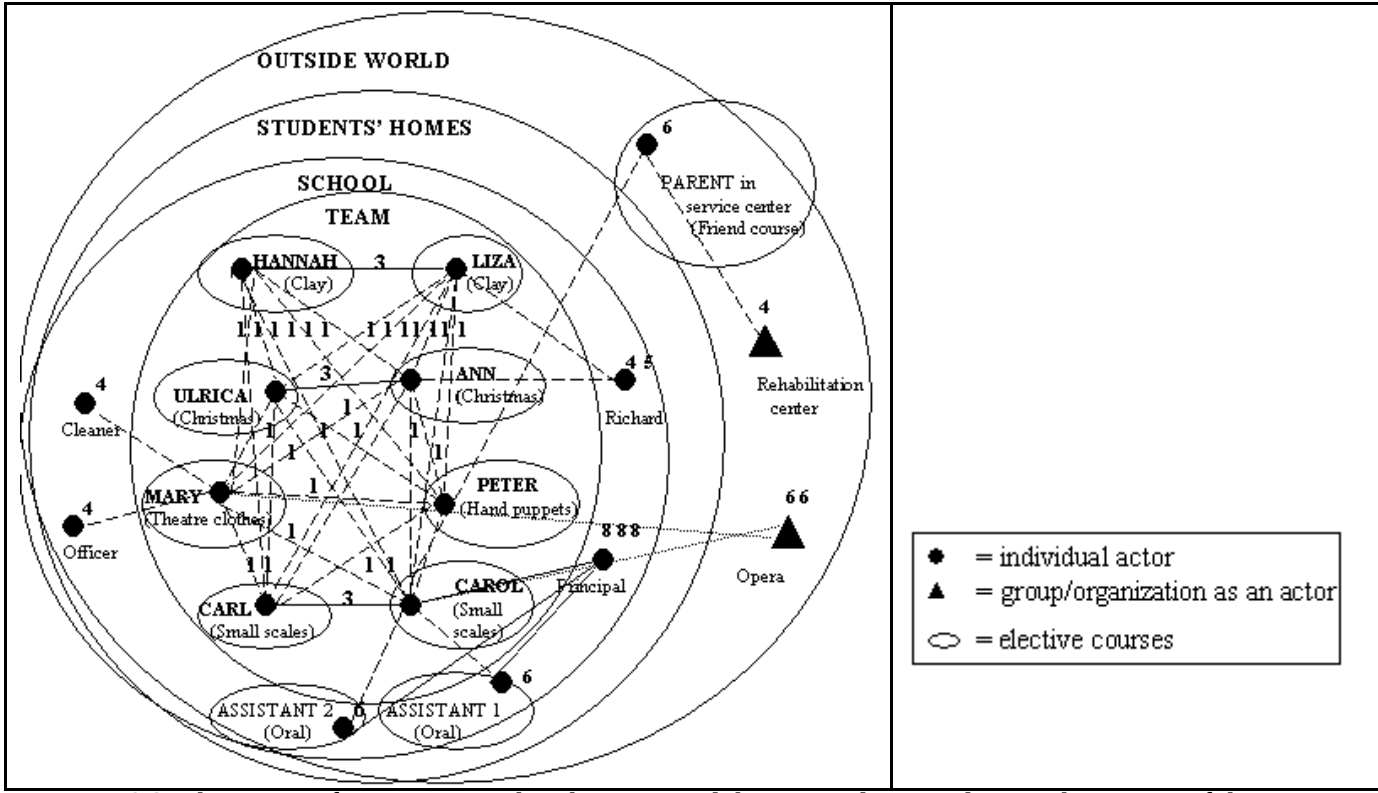


Figure 9.3. The nature of interaction within the team, and the outward-oriented network contacts of the team members, in 1994, during the planning process of the elective courses, as based on the interview data

In 1994, almost all the contacts within the team were the coordinative type, "coordinates the courses together." Only three cooperative "plans together" contacts could be identified. Only the teachers who were responsible for the same kind of courses (clay-, Christmas decoration-, and small scale courses) planned the courses together.

As to the outward-oriented network contacts, the teachers mentioned much fewer such network contacts in 1994 compared to 1993, only 13 contacts altogether. In fact, Maija, Hanna, Pekka and Saku mentioned no network contacts. Kaija had the most central position in the network in that she was the only person who mentioned being in contact with outside course leaders, namely with two assistant teachers and mother (cf. Bras., 1992). The other interviewees mentioned only one or two network contacts. The teachers mentioned one potential network contact in relation to the outside world, namely with the Opera. At the beginning of the planning of the electives course period, the idea was that the elective courses would somehow be connected with the opera theme. Kaija and Mervi thought that they would visit the Opera with the students. However, for this elective courses period, the contact with the opera did not materialize.

77 percent of the total number of outward-oriented network contacts were coordinative network contacts and 23 percent cooperative ones. The contacts were made mainly within the school. The coordinative contact category "asks a person or an organization to tutor the students" in relation to the outside course leaders was the most frequent type (38 % of all the contacts). The second most frequent contact category was the coordinative one "asks for help" (31 % of all the contacts). The cooperative contact "discusses or negotiates certain problems or issues with someone" was the third most frequent type (23 % of the total number).

2. THE TEAM MEETING DATA

In 1993, the evolution of the Local Community theme as a network is examined here within the three phases of the planning process: 1) the idea of the theme-working model and the Local Community theme; 2) the plan for the Local Community theme as a network; and 3) the implementation of the Local Community theme.

In Phase 1: “The constructing the idea of the theme-working model and the Local Community theme as a network,” 12 potential outward-oriented network contacts were identified, in all. Outward from the team as coordinative categories were found six "asks a person or an organization to tutor the students" contacts (50 % of the total number), and four "students themselves make the contact" links (34 % of all the contacts). Outward from the team as cooperative categories were found one "discusses or negotiates certain problems or issues with someone" link and one "disagrees" link. Anne was the person who most frequently started discussions related to the use of network contacts in constructing the idea of the theme-working model and the Local Community theme.

In Phase 2, “The plan for the Local Community theme as network,” 15 outward-oriented network contacts were identified altogether, of which 13 were potential ones. Outward from the team as coordinative categories, there were eight "asks a person or an organization to tutor the students" links (53 % of all the contacts), and five "students themselves make the contact" links (33 % of all the contacts). Outward from the team as cooperative categories, there was one instance of a "discusses or negotiates together" link, and one “disagrees or is dissatisfied” link. Now, all the teachers at least three times started the discussion relating to the use of network contacts in constructing the plan of the Local Community theme.

In Phase 3, “The implementation of the Local Community unit,” 19 outward-oriented network contacts were identified altogether of which one was a potential contact. Outward from the team as coordinative categories, there were eight "asks a person or an organization to tutor the students" contacts (42 % of all the contacts), and six "students themselves make the contact" links (32 % of all the contacts). Outward from the team as cooperative categories, there was one "discusses or negotiates" contact and four "disagrees or is dissatisfied" links.

It is interesting to note that in Phase 3 the teachers evaluated, in their meetings, how the work-study of the students had succeeded. The fact that there had been no particular teacher in charge of the group caused problems. Another problem of the work-study that the teachers did not negotiate the contents of the programs with their partners who tutored the students. Thus, the idea of better planning of the content of the work-study program was raised in the evaluation meeting. The teachers

decided that in the future the work-study group's work contents must be organized more efficiently. Below, an excerpt from the meeting(12/1993, topic 5/6) illustrates this self-criticism.

115 Leila: *Have we been thinking ahead that is this work group supposed to continue or will it end with this theme?*
116 Riku: *I think we had, I think we have ...I think we have talked about it.*
117 Leila: *But since we had these problems maybe it could be organized in the future and plan also the contents better.*
119 Anne: *Yes, of course and as smaller. And the new places might be asked from the day care homes around here.* (Meeting 12/1993, topic 5/6.)

Leila engaged in self-criticism with the view that the contents of the work-study should be planned in advance since some problems had occurred in its organization. In the excerpt, the potential outward-oriented cooperative contact "asks an organization to tutor the students" was identified, since Anne proposed a new work-study place, a day care center (Turn 119). As for the nature of interaction within the team, "plans together" contacts among the team members could be identified.

This kind of verbal self-criticism of the team may be interpreted as a mark of learning and development (see also Kärkkäinen, 1997d, 1998a) as well as a seed of reflective communication within the team (Engeström et al., 1991). Besides coordination and cooperation, Engeström et al. (1991, p. 90) identifies a reflective communication, which means that the actors focus on reconceptualizing their own organization and interaction in relation to their shared objects. Here, the teachers reconceptualized the idea of the work-study program to include joint planning of the partners involved.

As a summary, Figure 9.4. shows the nature of interaction within the team and the outward-oriented network contacts of the team members in each phase of the construction of the Local Community the

Figure 9.4. The evolution of the network contacts of the team 1993 in each phase of the planning process, as based on the team discourse data

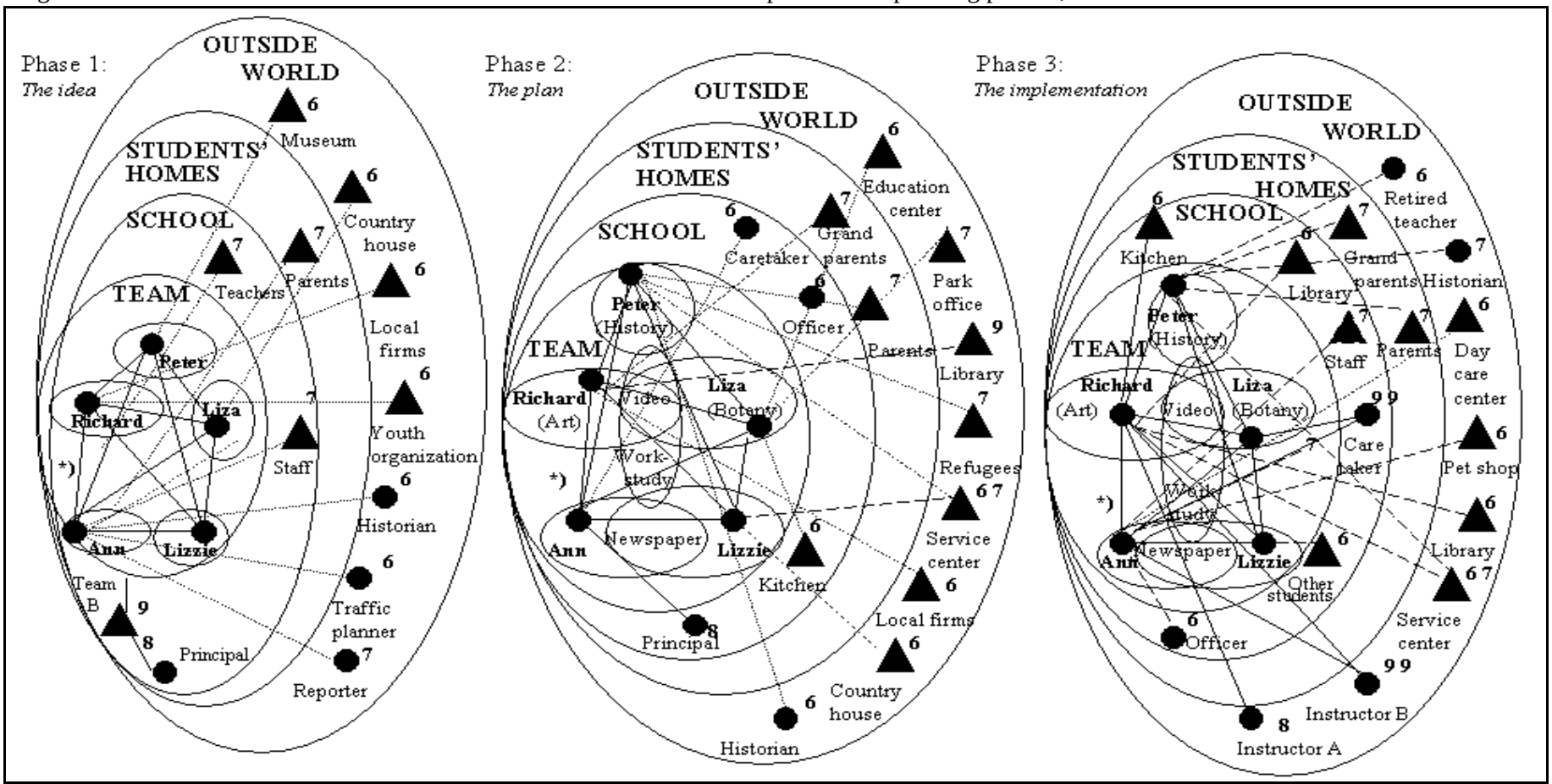


Figure 9.4. TABLE

Outward-oriented network contacts (contacts of three phases counted together)	School	Homes	Outside world	Altogether
Coordination:				
6. Asks a person to tutor	6	-	16	22 (48%)
7.Student makes the contact	4	2	9	15 (33%)
Together	10	2	25	*37 (80%)*
Cooperation:				
8. Discusses	2	-	1	3 (6 %)
9. Disagrees	3	-	3	6 (13%)
Together	5	-	4	*9 (20%)*
Altogether	**15 (33%)**	**2 (4%)**	**29 (63%)**	**46 (100%)**

● = individual actor
▲ = group/organization as an actor
⬭ = sub-theme groups

*) All the contacts within a team "Plans together" (3) contacts

As Figure 9.4. shows, in 1993, based on the team discourse data, the identified contacts within the team in each phase of the planning process were cooperative "plans together" contacts.

Frequent (altogether 46) outward-oriented network contacts could be identified during the planning process of the Local Community theme. It is noteworthy that in each phase of the planning process, the contacts were discussed mostly in relation to the outside world. Quite a number of network contacts could be identified in relation to the school but only few contacts in relation to the students' homes. During the entire planning process, the most frequent outward-oriented contacts were the coordinative ones "asks a person or an organization to tutor the students" (48 % of all the discussed contacts) or "students themselves make the contact" (33 % of all the discussed contacts) aiming at enhancing the acquisition of knowledge or work-study places for the students.

As to the verification of the potential contacts, in phases 1 and 2, there occurred many potential contacts which the teachers mentioned in relation to the school and the outside world. In Phase 3, most of the discussed contacts in relation to the school were realized, but altogether nine of the contacts in relation to the outside world - for instance in relation to youth organization and local firms - did not. However, the Local Community theme, as implemented, was very outward-oriented. The teachers made contacts in relation to the library, pet shop, service center, etc.

Compared to the interview data, the analysis of the team discourse revealed a different picture of the network contacts of the team. Now, only 18 percent of the total number of the discussed outward-oriented network contacts were cooperative network contacts, while 82 percent represented coordinative ones. Another difference was that, according to the meeting data, the outward-oriented network contacts were made mostly in relation to the outside world, while, according to the interview data, the contacts were made equally within the school and in relation to the outside world.

In 1994, the evolution of the elective courses as a network can be examined in the light the two phases of the planning process: 1) constructing a plan for the elective courses, and 2) evaluating the elective courses.

In Phase 1, “Constructing a plan for the elective courses,” six outward-oriented network contacts were identified , in all. Outward from the team, as coordinative categories, there was one "asks for information" contact and four "asks a person or an organization to tutor the students" contacts (66 % of the total number) in which one contact was potential only. One "disagrees" contact was identified. In fact, Kaija, who was chairperson of the meetings, was the most central person in the discussion of the network contacts within the elective courses team, in Phase 1.

In Phase 2, “Evaluation of the implementation of the elective courses,” nine outward-oriented network contacts were identified. Outward from the team, as coordinative categories, there were four "gives information" links (45 % of all the contacts), and two potential "asks a person or an organization to tutor the students" contacts (22 % of the total number). The "gives information" links were connected with a situation in the meeting in which the teachers reported to the principal what the students had done during their courses and how the courses had succeeded. Outward from the team, as cooperative categories, there were three "discusses or negotiates" contacts (33 % of all the contacts).

In the evaluation meeting, only four of the team teachers were present (Maija, Anne, Saku ,and Kaija). In addition, Riku, a member of the previous year's team, and the principal himself participated in the meeting. During the meeting, the teachers reconsidered the idea of work-study, a topic raised already in the planning meetings. Below, an excerpt from this meeting (4/94, topic 7/8) presents this discussion.

96 Maija: *But from now on, we could kind of start, so that we would try to get some kind of connection to another local home for the elderly.*
97 Riku: *Yes, where did the connection came from last year [during the Local Community theme]?*
98 Anne: *Taimi* [employee at the home for elderly] *probably arranged it.*
98 Kaija: *Then the same kind of idea occurred to me, that this work study, or whatever it is called, could be extended to the kindergartens, too*. (Meeting 4/1994, topic 7/8.)

In the excerpt in Turn 96, Maija suggests that the team could acquire work study places also from another service center for the elderly (a

potential contact "asks an organization to tutor the students"). Here, “plans together” contacts within the team can be identified, since Anne and Kaija expanded the suggestion of Maija to acquire work-study places, for instance, from the local kindergartens. Moreover, “discusses” contacts with Riku can be identified. Riku remembers that the previous year's team had made a contact with a certain worker of that service center. This reconsideration of the work-study may be interpreted as a mark of learning, and as a seed of cooperation within the elective courses team. In the excerpt, the teachers are seeking a shared object of planning.

As a summary, Figure 9.5. shows the nature of interaction within the team and the outward-oriented network contacts of the team members in each phase of the construction of the elective courses in 1994.

Figure 9.5. The evolution of the network contacts of the team 1994 in each phase of the planning process, as based on the team discourse data

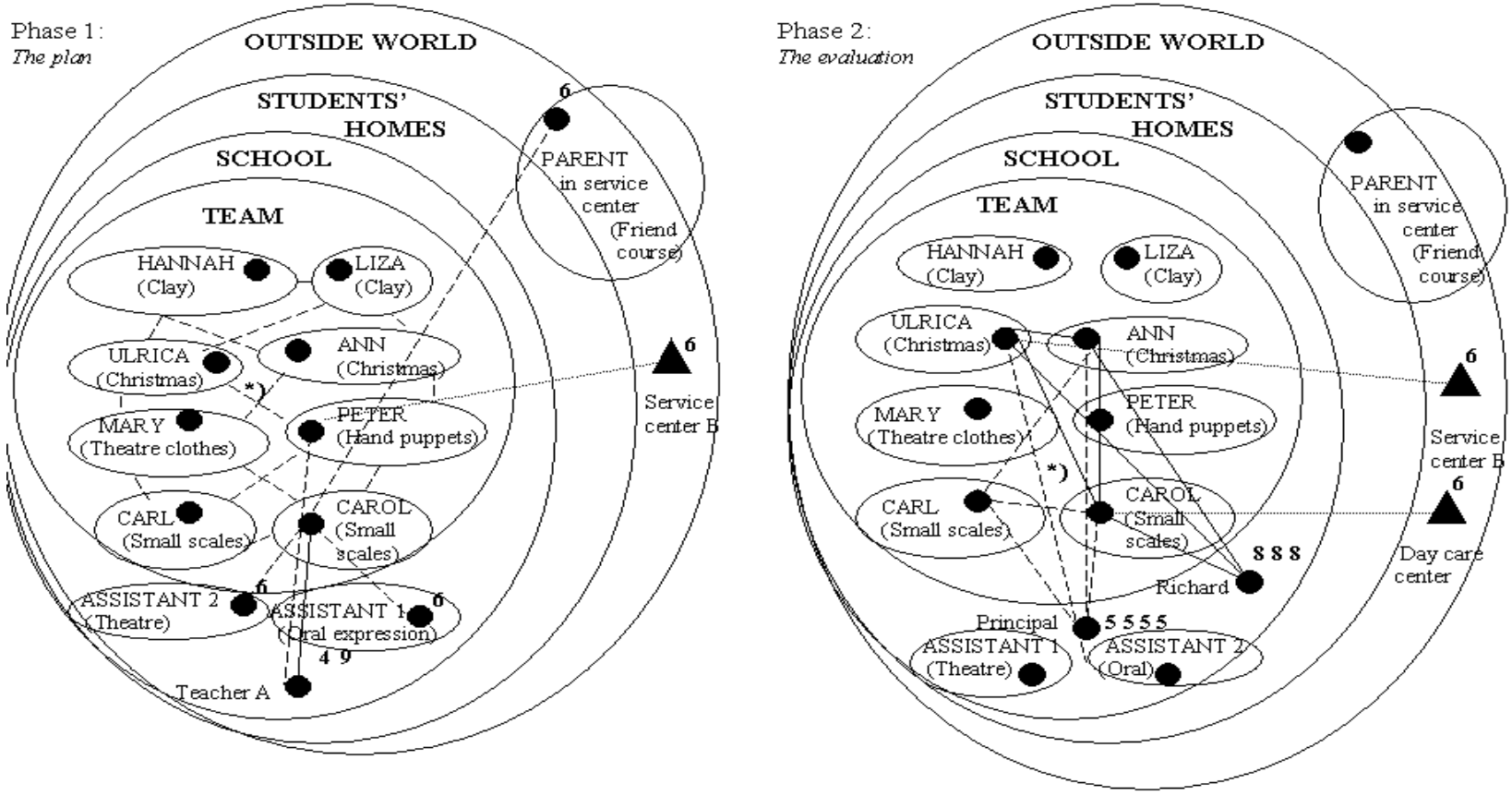


Figure 9.5. TABLE

Outward-oriented network contacts of both phases	School	Homes	Outside world	Altogether
Coordination:				
4. Asks for information	1	-	-	1 (7%)
5. Gives information	4	-	-	4 (26%)
6. Asks a person to tutor	2	-	4	6 (40%)
Together	7	-	4	11 (73%)
Cooperation:				
8. Discusses	3	-	-	3 (20%)
9. Disagrees	1	-	-	1 (7%)
Together	4	-	-	*4 (27%)*
Altogether	**11 (73%)**	-	**4 (27%)**	**15 (100%)**

● = individual actor
▲ = group/organization as an actor
⬭ = elective courses

*) The contacts within the team in Phases 1 and 2
"Coordinates together" contacts, in Phase 3,
3 "plans together" contacts were also found

As Figure 9.5. shows, in 1994, based on the team discourse data, the identified contacts within the team were mainly coordinative "coordinates courses together" contacts. The teachers coordinated the titles and division of students into groups together. In the evaluation meeting, "plans together" contacts could be identified, as a seed of cooperation within the team. The teachers planned the future work-study period together.

Altogether 15 different network contacts could be identified during the planning process of the elective courses. 73 percent of the total number of outward-oriented network contacts were coordinative ones and 27 cooperative. Relatively frequent "gives information" links in relation to the principal reflected a coordinative kind of working pattern in meetings. In each phase of the planning process, the contacts were discussed mostly in relation to the school. In practice, the network of the teachers comprised the outside leaders of the elective courses (the parent and the two assistant teachers), and only some persons within the school.

Compared to the interview data, a rather similar picture emerged. Over 70 % of the contacts were coordinative, and nearly 70 % of these occurred within the school according to both data. Compared to the data of the 1993 team, the meeting data revealed a different picture of the network contacts of the two teams. The teachers had much fewer network contacts in 1994 than in 1993, altogether only 15 contacts. Another difference was that in the 1993 team the outward-oriented network contacts were made mostly to the outside world while, in the 1994, team the contacts were made mostly within the school.

3. THE SHADOWING DATA DURING THE IMPLEMENTATION OF THE CURRICULUM UNITS

In 1993, during the implementation of the Local Community theme, the network contacts connected mainly to enhance the acquisition of knowledge for the theme and learning opportunities for the students, in such a way that the students themselves could find knowledge for the theme. In his history group, Pekka distributed the students into four sub-groups, in which the students could acquire knowledge of the local history. The sub-groups were: 1) the history of the school, 2) the local community in 1980-1993, 3) the local community in 1900-1980, and 4)

the local community before 1900. Pekka drew on the blackboard a summary with three columns: 1) the titles of sub-groups, 2) the names of the students within each sub-group, and 3) the sources of information and contact places within each sub-group. Pekka, together with the students, tried to think up the sources of information about the local history. The students made frequent contacts within the school, for instance with the staff of the school, in relation to their homes, and in relation to the outside world, for instance with the local newspaper and the museum.

In 1994, during the implementation of the elective courses, no network contacts of the teachers could be identified, neither did the students acquire knowledge outside the classroom by themselves. For instance, in Pekka's "hand-puppets" course, Pekka divided the students into four sub-groups in which the students made the hand-puppets. The fact was that neither Pekka nor the students had any network contacts. The implementation of the courses was classroom-centered. All 11 elective courses were implemented in four different buildings with one to three floors. The teachers did not interact much with each other during the elective courses, except for the earlier mentioned unofficial team of Anne, Riku, and Leila, which functioned in a separate building.

In 1994, the interesting form of networking was knotworking (Engeström, 1999) within this very unofficial team. During the implementation of the elective courses, I identified ten knotworking situations of this kind. I shadowed, in House A, Anne's "Christmas decoration" and Leila's "clay" course. Various forms of interaction among the teachers were identified: Riku often came to Anne's and Leila's classrooms to ask if they needed his help, or to ask Leila or Anne for their help, despite the fact that Riku was not a member of the elective courses team. This interaction within the unofficial team evolved spontaneously without any official rules of the organization (e.g., organization of planning of the elective courses). It is noteworthy that during knotworking, the official structure of the teachers' collaboration (the elective courses team) and the unofficial structure (the unofficial team) were intertwined with each other (cf. Chisholm, 1989).

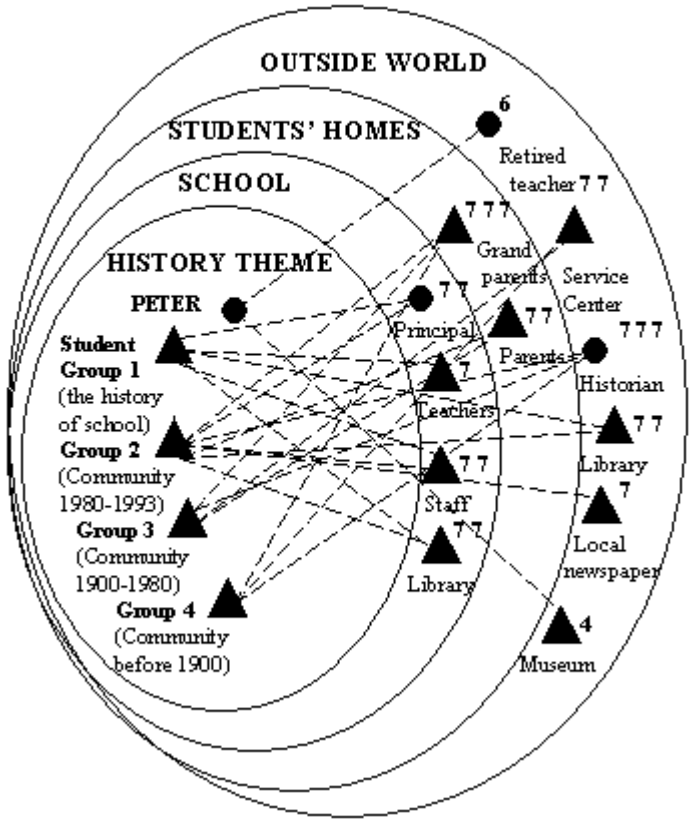
The knotworking of the unofficial team of 1994 may be interpreted here as a seed of a new kind of cooperation. When a problem came up, it was solved collectively and as immediately as possible by the teachers

who could help. The official rules of cooperation and the official team structure within the school were not imperative, the teachers focused only on getting the problem solved. As regards the new kind of cooperation, knotworking, in 1994, I could not place the knotworking situations in the layout picture with the four circles (see Figure 9.6.). I had to draw a different kind of layout picture based on the floorplan of the classrooms in which I could identify the actors and the contact categories among them.

Figure 9.6. below illustrates the different networking practices in 1993 during the implementation of the Local Community theme, and in 1994, during the elective courses. It was possible to place the network contacts of the 1993 history theme group according to the circles indicating expansion of the subject within the theme group, within the school, in relation to the students' homes, and in relation to the outside world.

Figure 9.6.The nature of network building during the implementation of the Local Community theme and the elective courses, as based on the shadowing data

The history theme in 1993



● = individual actor
▲= group/organization as an actor

The unofficial team in 1994

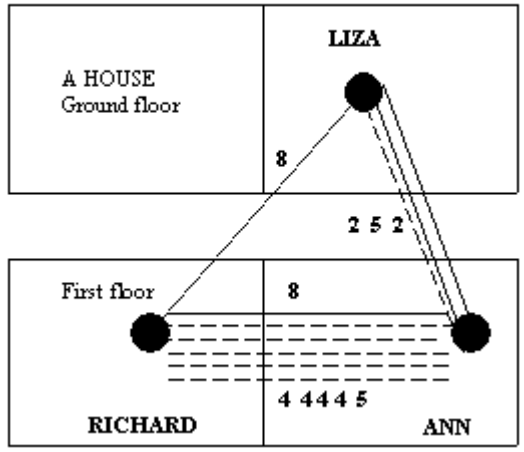


Figure 9.6. TABLES

The contact categories within the unofficial team	School f(%)
Coordination:	
4. Asks for information	2 (20%)
5. Gives information	4 (40%)
Cooperation:	
2. Does together	2 (20%)
8. Discusses	2 (20%)
Altogether	10 (100%)

Outward-oriented contact categories of history group	School	Homes	Outside world	Altogether f(%)
Coordination:				
4. Asks for information	0	0	1	1 (4%)
6. Asks to tutor the students	0	0	1	1 (4%)
7. Student makes the contact		5	8	20 (92%)
Altogether	7 (32%)	5 (23%)	10 (45%)	22 (100%)

In 1993, during the implementation of the history theme, 22 outward-oriented network contacts could be identified. The outward-oriented coordinative contact "students themselves make the contact" was the most frequent link (altogether 20 such contacts). The idea was that the students themselves interviewed different kinds of persons etc. to acquire knowledge for the theme. The students made frequent contacts in the school, with their homes and with the outside world. The network contacts were most frequent in relation to the outside world. Also one "asks a person to tutor the students" contact and one "asks for information" contact could be identified.

In 1994, during the elective courses, the ten knotworking situations included two cooperative "does together" contacts within the elective courses team. For instance, Leila and Anne practiced the clay technique together. Within the intertwined organization of the elective courses team and the unofficial team, two cooperative "discusses" contacts could be identified. For instance, Riku came to Anne's classroom to discuss with Anne the content of Anne's "Christmas decoration" course. Also four coordinative "gives help" contacts (the most frequent contact type, 40 % of all the contacts) and two "gives help" contacts could be identified. For instance, Leila asked Riku if he could help her mould the clay, and Anne came to help Riku in his classroom and to instruct his students in how to do needlework.

INTERPRETATION OF THE FINDINGS: THE 1993 AND THE 1994 TEAMS AS NETWORK BUILDERS

This chapter has explored the two different teams' quality of interaction within the team itself, and the team's quality of outward-oriented network contacts through three types of data including interviews, team meeting discourses, and observation data. From an activity-theoretical viewpoint, I have developed a methodology for describing and analyzing teachers' work, including the planning and implementation of curriculum units, as a network. Here, I will interpret under what conditions the boundaries of the team and the traditional, rigid work-customs of a teacher as an individual planner and executor of lessons will break. I will also interpret how these two different teams, having different team concepts, used network contacts to plan their curriculum units.

In the following, I will discuss these findings, first, in terms of methodological implications, and second, in terms of substantial findings, namely what these two different team concepts tell us about network building and crossing the boundaries of the teams.

1. Methodologically, to secure the validity and the reliability of the study, it was essential to analyze teams as network builders through three different types of data, and including the idea of outward-orientation and object-orientation of the network contacts.

One can determine that the developed two-dimensional analysis framework of the team's network contacts (see Table 9.1.), as being both object-oriented and outward-oriented, worked well in the analysis. The examination of the two different team concepts and the two different planning processes of curriculum units showed interesting differences in the nature of the interaction within the team as well as in the nature of the team's outward-oriented network contacts. It was possible to identify all nine kinds of contact categories in the data. The rich meeting and interview data enabled here the identification of network contacts that are quite difficult to identify, for instance "disagrees" links (see also Krackhardt & Kilduff, 1990).

Each of the three types of data revealed a different kind of picture of the teams as network builders. To get a comprehensive picture of the teams as network builders, each kind of data was collected in different phases of the planning processes of the curriculum units. Thus, the different kinds of data complemented each other.

For instance, in 1993, the interview data, the discourse data, and the shadowing data gave completely different pictures about the quality of the team's outward-oriented network contacts. Through interview data there could be identified frequent (almost half the total number of network contacts) cooperative "discusses" contacts which were connected to the teachers' exchanging of the ideas with different network actors about the theme-working model and the Local Community theme. However, according to the team discourse data, only 18 percent of total number of outward-oriented network contacts were cooperative network contacts.

Especially in 1994, the picture of the network contacts would have remained superficial, had not the examination of the shadowing data been included. According to the interview and meeting data, the picture of the network contacts was formal, including the outside leaders of the elective courses (the parent and two assistant teachers). Based on the shadowing data, however, frequent knotworking interaction situations of the unofficial team of three teachers could be identified.

The comparison and combination of the different kinds of data is called triangulation (see Guba & Lincoln, 1985), which aims at enhancing the validity and reliability of the study. However, triangulation is not a simple technique to obtain validity and reliability (cf. Kvale, 1995). Triangulation is useful especially if (1) one studies complex phenomena such as network contacts; (2) if one has several informants; and (3) if one uses several methods of obtaining data. As Guba & Lincoln (1985) state, triangulation helps eliminate narrow interpretations based on a single set of data.

Jansson et al. (1990) state that in network research, validity refers to the issue of whether a developed framework is a relevant representation of reality, and reliability refers to the issue of whether the theoretical framework of the study reflects the true relations of the network.

All the three types of data were recorded on audio- or video tape. Tape-recordings provide highly detailed and publicly accessible representations of interaction (cf. Heath & Luff, 1992). Through three types of data it was made certain that the mentioned network contacts, and the nature of different network contacts, were checked from several sources whenever possible, and afterwards that data collected by different methods were compared with each other.

When taken alone, each type of data will show its specific strengths and weaknesses. These strengths and weaknesses which dealt with already in the beginning of this study, were encountered mainly in the literature. I will present my more detailed interpretation in Table 9.2., where the strengths and weaknesses are shown.

	Interviews	**Meetings**	**Shadowing**
Strengths	Revealed an overall picture of the teachers' conceptions about their network contacts.	Covered all the meetings during the planning processes of the units. Showed how the overall planning of the curriculum units evolved in theteam as a network.	Revealed the nature of network contacts during the implementation of the units. Revealed an in-depth picture of certain interaction situations.
Weak-nesses	The contacts may have represented individual expectations not reflecting the implemented links.	Revealed only those network contacts that the teachers discussed in their meetings.	Did not reveal a comprehensive picture about the interaction and network contacts during the implementation of the units.

Table 9.2. Inherent strengths and weaknesses of the three types of data used

Through the interview data, as its strength, it was possible to examine the teachers' conceptions about their interaction within the team, and their outward-oriented network contacts. The interviews were conducted at the beginning and end of the planning processes for each teacher of the two teams, and thus it was possible to check at the final interview whether the potential network contacts mentioned in the beginning interview had materialized in practice. However, one of the limitation of the interview data was that I could not verify whether the mentioned network contacts reflected the actual, implemented links. They may have partly represented each teacher's individual expectations and wishes as well.

The meeting data were used to examine how the planning of the curriculum units evolved as a network. Its strength was its representativeness in covering all the meetings during the planning processes of the curriculum units. Based on the meeting data, it was possible to focus on the question of how the planning network itself developed within the planning process. For instance, the analysis of the 1993 team showed that at the beginning of the planning process (in Phases 1 and 2) many potential contacts were mentioned, but a great number of them did not materialize in practice. A weakness of the team discourse data was that the meetings did not reveal how the teams built

their networks in actual practice. Only those network contacts that the teachers discussed in their meetings could be identified.

The shadowing data, finally, described the nature of interaction during the implementation of the units, for instance what kinds of network contacts the teachers and the students used within the theme groups and the courses. Here, shadowing captured detailed conversations intertwining with activities during the implementation of the curriculum units. As Sachs (1993) put it, shadowing was an efficient method of collecting data about on-the-ground phenomena over some period of time. Another advantage of the analysis of the shadowing data was that it gave an in-depth picture of certain interaction situations. For instance, in 1994, shadowing captured the frequent knotworking interaction situations of the unofficial team. Through shadowing it was possible to identify the intertwining of the official structure of the teachers' elective courses, collaboration, and interaction within the unofficial team. However, the main limitation of the shadowing data was that I could not videotape the implementation of all the curriculum units at the same time. In 1993, there were altogether five theme groups to be shadowed, and in 1994, altogether 11 elective courses. I could videotape only some of the groups.

2. Network building and breaking the traditional work pattern of teachers, specially that of individuals planning and implementing their lessons single-handedly, is based on building cooperatively a shared object in the team

The interesting finding here is the interconnectedness of the different team concepts, the organizational arrangements of the school, and the teams' use of network contacts in the planning and implementation of the curriculum units. The 1993 team can be described as a cooperative team, while the 1994 team can be described as a coordinative one. The 1993 team was relatively separate from the rest of the school, but the members shared a common object within the team. The team planned cooperatively how to work as a team, and it planned the concrete Local Community theme. The 1994 team was founded by the administration, its task being to plan the elective courses, and the object of the team was fragmented into the coordination of 11 different courses. The teachers' community changed in that the whole school was reorganized with regard to the teachers' collaboration. In the 1993 team, the outcome of the planned curriculum unit was an open and networked

theme-based curriculum unit, while in the 1994 team, the outcome included 11 separate class-centered elective courses. Paradoxically, in regard to the network contacts, the 1994 team could be described as an isolationist team (cf. Ancona et al., 1992).

Granovetter (1973) claimed that weak ties are the most useful network contacts for communities, while strong ties lead to fragmentation and social isolation. In the present study, I did not study the strength of contacts. However, in line with Granvetter (1973), the teacher team network contacts, in 1993, in relation to the students' homes and to the outside world can be characterized in many instances as occasional weak ties, such as might import useful knowledge and contribution to the planning of the curriculum units. Weak ties are important since they connect people with the social environments with which they are unfamiliar (see e.g., Castrén, 1998; Lonkila, 1997). In 1994, the few contacts made were made only within the school environment, for instance. in relation to the principal (characterized as strong ties; frequency of contact = often), and the 1994 team can be described as an isolationist team. However, in 1993, the frequent contacts within the school and to the outside word can be characterized as examples of both strong ties (e.g., relations with teachers who were friends) and weak ties (e.g. ,in relation to a retired teacher). It may be postulated that the network building of a teacher team requires the flexible use of both weak and strong ties.

Why did the number of network contacts in the 1994 coordinative team diminish, although the community of teachers expanded? The findings highlight the importance of the object as the most crucial element in network building. The nature of the object of the team is closely related to the nature of the team's social organization and to the nature of the outward-oriented network contacts.

As the findings show, in the cooperative team of 1993, the traditional school work pattern broke down to the extent that the shared object of the team widened to include the outside world, and at the same time, the context of learning for both teachers and students expanded (cf. Engeström, 1987; Miettinen, 1998a). The networking of the 1993 team emphasized activities in which both the students and teachers moved outside the classroom and the school. The team crossed the institutional boundaries of the school. The expanded object, as a network, consisted of the application of the Local Community theme and the idea of

theme-working. On the other hand, this expansion remained as the achievement of this team only in the school.

It is noteworthy that the 1993 team engaged in self-criticisms, in the way of reflective communication of the nature of their interaction within the team. Some teachers had expected more interaction during the implementation of the themes. It was suggested that the team should plan more carefully the gathering of the themes together. Based on the team discourse data, the team criticized itself about the nature of its network contacts concerning the planning of the work-study with the tutors. It was suggested that the work-study should be planned in interaction with those individuals who were meant to tutor the students during the work-study.

All in all, the 1993 team managed to build versatile network contacts which, as instruments, helped the teachers and the students find the necessary knowledge from outside the classroom and the textbooks. Often a knowledgeable person as a source of information was invited to the school to share his or her knowledge with the students. The teachers also developed, through collaboration, their own network contacts in order to plan and implement theme-working and the Local Community theme. The interview data showed the frequent use of the "discusses or negotiates with somebody" contact category of the teachers. From the viewpoint of collaborative learning within the teacher team, it is noteworthy that the teachers had network contacts during their planning process in order to search for ideas from several persons outside the team (cf. Ancona et al., 1992). The network contacts were utilized not only to expand the learning opportunities of the students (cf. Slavin, 1987) but also to enhance the learning of the teachers in the work of planning the curriculum unit.

In 1994, the interaction was mostly coordinative within the elective courses team. The nature of the network contacts was formal, in the sense that they consisted, in practice, of the outside course leaders (the parent and the two assistant teachers). The concept of the team can be characterized as pedagogical-administrative. The task of the team was to coordinate the elective courses. In this sense, the object of the team was fragmented, and the motivating force of the fragmented object was so weak that it did not push the team into building the network contacts to the world outside the school. On the other hand, one observes that the school community expanded, and the teams were embedded in the

overall reorganization of the teachers' collaboration. Teamwork was the adopted practice of the whole school and did not remain the ambition of merely one team.

Interestingly enough, the shadowing data showed the knotworking (Engeström et al., 1999) kind of interaction of the unofficial team of Leila, Anne, and Riku (they were all members of the previous year's team). The unofficial team worked in the same building, asking for or giving each other help. The knotworking in the 1994 unofficial team may be interpreted as a seed of a new kind of cooperation during the implementation of the elective courses. It resembled the cooperative working of the 1993 team but was different that the interaction within the unofficial team evolved outside the official structure of the teachers' collaboration. Problems were solved spontaneously, they were not resolved in the official elective courses teams. The essential question of the future is in what way the elective courses model of the 1994 team and the theme-working of the 1993 team will combine and inspire each other.

10. DRAWING TOGETHER, INTERPRETING AND CONCLUDING THE FINDINGS

DRAWING TOGETHER THE FINDINGS

In this section, I will summarize and draw together the findings of each of the four chapters. What will we learn from this study? Both theoretical and methodological implications of the study are examined.

I presented the main research problems of this study in the introduction, and the more precise research problems at the beginning of each of the four findings chapter. In the following sections, I will draw the findings together based on the four research problems.

Problem 1: What are the differences and similarities of the planning processes of the curriculum units within the Finnish and the American teacher teams, and between the countries?

In Chapter 6, I compared the planning processes of the Finnish and the American teams focusing on the ways the teachers talked in the teams. The analysis connected the discourse observed in the teams to the activity context in which the discourse took place. The examination of the teams in two different cultures revealed differences and similarities in the planning processes by analyzing (1) the turn taking patterns, (2) the use of moods in the talk, and (3) topics and concerns of the discourse. Particularly the analysis of the topics and concerns enabled me to depict and compare the two planning trajectories in their entirety. The differences and similarities of the Finnish and American teams' planning discourses were discussed in terms of differences in gender and culture. But they were not unambiguously explained on the basis of such universal explanations, and these explanations were internally inconsistent. The differences and similarities were explained with the help of the concept of activity systems. The use of the conceptual model of the activity system helped me answer the question of how one should understand the nature of development in the team. The notion of the activity system focused the analysis to systemic differences in the teams' practices. In Chapter 5, I examined particularly the central instrument (or instrumentality) of the activity systems of the teams - the planning talk. The turn-taking patterns, the mood usage, the topics and

the concerns of that talk were interpreted as being important aspects of the instrumentality of the activity system.

I introduced the notion of a planning trajectory which included the emergence of the idea of the units of the Local Community and elective courses, as well as their planning and implementation processes, and the follow-up of their implementation. Comparative analysis of the topics and concerns revealed that in the Finnish team during both years the teachers often took up one topic at a time and reached a decision on it before continuing. In other words, a relatively linear progression with an occasional reopening of a topic was characteristic to the meetings. The pattern of the planning processes in the Finnish team was characterized as a zig-zag.

In the USA, in 1992, the discourse of the team constantly circled back and forth and frequently reopened already discussed topics. The shape of this process was characterized as a recurring spiral, consisting of a number of parallel smaller spirals each of which represented a recurring topic in a meeting (Buchwald, 1995). The Gold Rush planning in 1994 was not a repeated spiralling through curriculum possibilities but a push along several adjacent paths toward a final plan (Buchwald, 1995). This planning trajectory was relatively uni-directional and linear and took a form of a zig-zag as was observed for the Finnish team in both years.

In Finland, the talk of the teachers changed from cooperative talk of the 1993 team without pauses or the use of cooperative concerns of discourse to coordinative talk of the 1994 team with pauses, and the use of coordinative concerns in discourse. At the same time, the organization of the teachers' collaboration changed. The 1993 team was already relatively autonomous, while, in 1994, the orders came from above to restructure into teams. There was observed an expansion in the organizational scope - the teams were embedded in the overall reorganization of the collaboration within the school. The teams constructed also their objects in different ways. During the first planning trajectory, the team planned an outward-oriented unit : the Local Community. During the second planning trajectory, the Finnish team coordinated the fragmented and classroom-centered elective courses.

In the American team, the talk of the 1992 team changed from cooperative talk with overlapping and conditional talk with the use of

cooperative concerns in the discourse to a more disciplined pattern of discourse with more pauses, indicatives, and coordinative concerns of discourse in their talk (the 1994 team). The 1992 team was the only team in its school, and it planned a compact and coherent unit: the Harvest Festival. In 1994, the team engaged the rest of school actively in the planning process. The extended team planned a networked and open Gold Rush theme.

The findings showed that in the activity systems of the teams, all components interacted with and influenced each other. The observations made in the analysis indicate that it is precisely the configuration and quality of the whole activity system, the local interaction of all its components in the two teams, that led to the different styles of planning talk and planning trajectories. The nature of the Finnish team development over the two years looked like regression. The elective courses of 1994 were carried out in a fragmented and classroom-centered form. The team did not share a common object. The nature of discourse changed from cooperative to coordinative. It was unclear who was participating in or committed to the planning and implementation of the elective courses. However, the team members told that the cooperation between all the teachers was more useful in 1994 than 1993. During 1993, the theme-working had been a special event, and it had not been so much teaching work as were the present elective courses. Thus, progress was being observed in relation to the community – there had occurred expansion of the organizational scope.

The evolution of the American team was continuous. The team was permanent, and, in 1994, it got the rest of the school actively involved in the planning and execution of the Gold Rush unit. Expansion was observed both in the object formation and organizational scope. The teachers, on their own initiative, wanted to have a broader representation of the school in the team.

The teacher team cases reveal the contradictory development of teams. The teams did not develop in a linear manner via certain phases from a group to a top team. It was not a matter of mere inner development within the teams. Rather, the boundaries of these teams were opened within the school (cf. Ancona et al, 1992). From the viewpoint of the activity system, it can be observed that regression in some of elements can take simultaneously with expansion in some other elements.

From the perspective of developmental work research, the study offers an important methodological lesson. My analysis of the planning trajectories and their typical sequence patterns (the zigzagging and the spiraling) points to the importance of different, embedded, levels of time and development in work activities. In developmental work research, the focus has been on qualitative cycles of transformation and expansive learning that often take several years. This analysis implies that within such extensive cycles, the analysis of smaller trajectories and repeated sequences may offer significant insights into the inner workings of longer developmental processes (for a similar conclusion based on different data, see also Engeström, 1998).

Problem 2: How did the contents of planning collective curriculum units in the Finnish teacher teams' discourse change as the organization of teachers' collaboration changed?

Analyzing changes described in the use of the social languages, in Chapter 7, I examined how the nature of the Finnish teacher teams' discourse changed as the organization of the teachers' collaboration was changed within the Finnish school. I examined both the changes within one specific planning process and the differences between two planning processes conducted before and after the school's organizational change.

The two teams were founded on the basis of different concepts. The organization of the teachers' collaboration changed from a pedagocically oriented team work initiated from below into a school-wide, administratively implemented structure of loose teams coordinating the elective courses. It is remarkable that both teams still kept planning curriculum units for the six week periods.

The theoretical and methodological framework employed in the analysis is based on Bakhtin's (1982) concept of social languages. The analysis identified three main social languages in the teacher team discourse, namely 1) the language of pedagogical reform, 2) the language of practical experience and 3) the language of administration. In addition, seeds of new potential languages were identified. In 1993, the teachers' critique on the ideology of student motivation and choice, which the team itself tried to implement, was predominant among the seeds of potential new languages. The critique talk did not consist

entirely of talk of disappointment and pure negation. One may also identify developmental possibilities there. The teachers began to talk about how to enhance students' learning. In 1994, compared to the previous year, the critique talk was more diffuse.

There was a decline in the use of the language of pedagogical reform between the two years which seemed to be directly related to the fact that in 1994 the team did not discuss the pedagogical idea of elective courses or their pedagogy in general during the planning process. The language of administration was used in 1993 but was nearly absent in 1994. The teams' assignments and tasks were different in 1993 and 1994. The team of 1993 was founded on the initiative of the teachers themselves. Externally given rules for the collaboration of teachers did not yet exist in the school. They needed to be worked out in the team. In 1994, the whole school was restructured into teams. This expansion was accompanied by new administratively given rules for the whole school. There was no need for the team to discuss or negotiate the rules, especially since the task of the team in 1994 did not require joint construction of a shared theme for the elective courses. The language of practical experience dominated in 1994. This increase seemed to be related to the organizational change in the school. The elective courses had no common, shared theme. All eight teachers planned their courses by themselves. Team meetings were mainly used to discuss practical arrangements. There was little need for ideological and theoretical discussion. This finding showed that the character of the object of the team's activity was something like a mediator between the administrative and social organization of the team, on the one hand, and the nature of the discourse on the other hand.

The findings summarized above show significant changes in the nature of the teams' discourse. As instrument of collaboration, the talk of the teacher teams reflected the change in the organization of teachers' collaboration. This fact directs attention to the relationship between the teams and their organizational structures. To compare the teams, one must keep in mind that both teams were qualitatively distinctive activity systems. Talk as a medium of planning and reflection is not unidirectional or mechanical. As the findings showed, the teachers constructed their situations, identities and organizational arrangements locally through talk. Instead of simple causation from the structure of teachers' collaboration to the nature of discourse, a more reciprocal and dynamic pattern seems to emerge. In this pattern, the organizational

structure of teachers' collaboration, the object and task of the team, and the nature of discourse all mold and modify each other.

The concept of social languages directed the analysis to the historicity of activity and language and to the multiplicity of perspectives in talk. The heteroglossic multiplicity of variations of talk interacting in the work of teacher teams became analyzable and intelligible through the construction and identification of social languages as historically formed resources of evolving communities of activity. The seeds of new languages as self-critique talk reflected new emerging thinking models and working practices of the teams. In 1993, the teachers began to emphasize students' learning and students' own needs and expectations, not only their possibility to choose. In 1994, through self-critique the teachers tried to reconceptualize the idea of group work of the students.

Problem 3: How to conceptualize and identify the collaborative learning of the teacher teams?

In Chapter 8, collaborative learning in the teams was analyzed as the object formation. I focused on the problem of how collaborative learning in the team discourse can be analyzed as the teams' constant re-formulation and construction of their objects.

In the analysis of object formation, I introduced the concept of turning point. The turning points in object formation were identified as a source of collaborative learning. I operationalized the turning points with the help of three indicator concepts, namely: disturbance clusters; questioning; and interaction of different voices. In the identification of voices (Bakhtin, 1982), I employed the results of the use of social languages (Chapter 7).

In collaborative learning of the teams, I also examined the relationship between the teams and their organizational structures. There was a certain continuity in the fact that three teachers from the previous year's team participated in the team under study in 1994. I also examined the elements which were brought from the first year's team model to the second year's model by the teachers who participated in both teams.

In 1993, there were eight turning points and in 1994, altogether seven turning points in the planning discourse. The key finding of the analysis

was the identification of the types of turning points in object formation in both years, namely (1) widening the object in terms of spatiality, temporality and depth, (2) narrowing the object, (3) switching the object, and (4) disintegration of the object.

The findings showed that during the turning points the teams outlined their objects in a new way. The turning points started when one of the team members questioned the present pedagogy of the team, the present idea to organize the curriculum unit, or some other previously presented idea. Each turning point comprised disturbance clusters. The language of reform-pedagogy was used during all the turning points, in 1994, and during seven turning points of the total of eight turning points, in 1993. Also a high occurrence of seeds of new languages during the turning points in both years was noted. With the help of variations of the language of the pedagogical reform the team members of 1993 zoomed their talk to the pedagogical idea and nucleus of the team. With the help of the seeds of a new language, mostly as a critique talk, they criticized the pedagogy they had implemented.

The widening of the object was the most frequent type of turning point of object formation in both years. In 1993, the widening of the object included the expansion in depth, in the sense that the team elaborated on and created the concept of theme-working and also evaluated and re-elaborated on the concept so that the ideological dimension of the object became deeper. The tension between the control of students' choices versus offering them genuine opportunities for choice made the team elaborate on a new kind of pedagogy which would emphasize the facilitation of students' learning. The object widened spatially, too. During the turning points, the teachers made attempts to expand teachers' collaboration. The idea of theme-working was "narrow" in the sense that the teachers planned the theme-working sessions once a week and the sessions also took place once a week for three hours at a time. The tension led the team to seek possibilities to expand their collaboration. Spatial expansion included also the networked opening up of the Local Community theme. Finally, the object widened temporally including the discussion emphasizing that the team members should get to know the students better by long-term interaction with them and by exchanging information about them.

In 1994, the widening of the object was connected largely to the elements which the three teachers who participated in both the 1993 and

1994 teams tried to bring from the first year's team model to the second year's team. The teachers made attempts to expand the collaboration of teachers by joint planning sessions and joint presentations of the outcomes of courses. However, neither joint planning nor joint presentations came true during the elective courses period. As the in-depth expansion of the object, the teachers tried to reconceptualize the idea of the group work of the students. The teachers also elaborated on the idea of the elective courses, discussing the possibilities to include a shared theme, joint planning, and work-study outside the school in the elective courses.

However, the development of the teams was contradictory in the respect that there occurred, in 1994, narrowing and disintegration of the object. The crucial turning point of the planning phase led to a disintegration of the object. The disintegration of the object may be related to the organizational change in the school. The task of the team was to plan the elective courses, and that idea did not include the idea of a shared theme. Another crucial turning point led to a narrowing of the object as the teachers decided not to open up the classroom by acquiring more work-study places for the students. The team evaluated the need for the work-study outside the school based on the group sizes of the students, not based on a pedagogical idea of the team. The team members decided not to acquire work-study facilities since the group sizes of the students remained rather small.

It is noteworthy that the turning points of the object formation for the planning process of the Local Community theme (1993) included two different levels. At the general level, the turning points were connected to the formulation of the concept of theme-working. At the more specific level, to the construction and evaluation of the Local Community unit. The team conducted theoretical and ideological discussion at the beginning of the planning process. At the of the planning process, it was possible for the team members to evaluate the working out of idea of theme-working and also to elaborate further on that idea.

The turning points of object formation during the planning of the elective courses included only one level, namely the specific level of t planning the elective courses. The object did not include the general level of defining the concept of elective courses; it was not discussed in

the meetings. All eight teachers planned their courses by themselves and there was little need for ideological discussion on the pedagogy.

Problem 4:Under what preconditions will the teams make network contacts?

In Chapter 9, I explored the external perspective on teams, in other words, the teacher teams as network builders. I concentrated on teacher teams' networks, not those of an individual teacher or school organization only I focused on the methodological question of how the teachers' work, including the planning and implementation of curriculum units, can be described and analyzed as a network. I examined and interpreted the teacher teams' network contacts from the viewpoint of organizational development.

I developed my own method to analyze the network building of the teacher teams including the idea of outward-orientation and object-orientation of the network contacts. I explored the quality of interaction within the team itself, and the quality of the teams' outward-oriented network contacts. By "networks of teacher teams" I mean teacher teams in the activity of building network contacts within the school, as well as in relation to the students' homes and the outside world.

In the analysis, I used multiple complementary types of data, namely interviews with the teachers, discourse data of the planning meetings of the teams, and observation data collected during the implementation of the curriculum units.

The findings showed that, methodologically, it was essential to analyze the teams as network builders through three different types of data, and including the ideas of outward-orientation and object-orientation of the network contacts. None of the three types of data alone provided a sufficient picture of the networks of the teachers.

The examination of the two different team concepts and two different planning processes of the curriculum units showed remarkable differences in the nature of the interaction within the team, as well as in the nature of the team's outward-oriented network contacts. It was possible to identify nine kinds of contact categories.

The three different kinds of data complemented each other. For instance, in 1993, the interview data, the discourse data, and the shadowing data gave quite different presentations about the quality of the team's outward-oriented network contacts. In interview data I identified frequent cooperative "discusses" contacts which were connected to the teachers' exchange of ideas with different network actors about the theme-working model and the Local Community theme. However, in the team discourse data, only 18 percent of the total amount of outward-oriented network contacts represented cooperative network contacts. In 1994, the picture of the network contacts would have remained superficial, had not the examination of the shadowing data been included. In the interview and meeting data, I identified only few network contacts for the teachers. Based on the shadowing data, nevertheless, there could be identified frequent interaction situations of an unofficial team of three teachers.

Why did the amount of the network contacts in the 1994 coordinative team diminish, even though the community of the teachers expanded? As the main substantial finding, the analysis showed the significance of the team's object in its constituting the most crucial factor in network building. The 1993 team of the school could be characterized as a cooperation team, and the 1994 one as a coordination team. Breaking the traditional work pattern of teachers, specially that of individuals planning and implementing their lessons single-handedly, is based on building cooperatively a shared object in the team.

As the findings show, in the cooperative team of 1993, the traditional school work pattern was broken to the extent that the shared object of the team expanded to include the outside world, and, at the same time, the context of learning for both the teachers and the students expanded. The networking of the 1993 team emphasized those activities in which both the students and teachers moved outside the classroom and the school. The expanded object, as a network, consisted of the application of the Local Community theme and the idea of theme-working. On the other hand, this expansion remained as the achievement of this team only, in the school.

In 1994, the interaction was mostly coordinative within the elective courses team. The network contacts was formal, in the sense that they consisted, in practice, of the outside course leaders (the parent and the two assistant teachers). On the other hand, the school community had

expanded, and the teams were now embedded in the overall reorganization of the teacher collaboration. Teamwork was the adopted practice for the whole school and did not remain the ambition of one team, merely.

The shadowing data showed the “knotworking” (Engeström et al., 1999) kind of interaction of the unofficial team of three teachers (they were all members of the previous year's team). The unofficial team worked in the same building helping and supporting each other. This knotworking in the 1994 unofficial team was interpreted as a seed of cooperation during the implementation of the elective courses. It resembled the cooperative working of the 1993 team but was different in that the interaction within the unofficial team evolved outside the official structure of the teachers’ collaboration. The official team structure, the elective courses teams, was not imperative as the teachers focused only on getting the problems solved. During knotworking a problem was solved collectively and as immediately as possible. The teachers’ work was temporarily tied together, then untied and re-tied again depending on the need for collaborative efforts.

INTERPRETING THE FINDINGS

The motivating question of this study has been in what preconditions the teamwork of the teachers in an elementary school breaks through the traditional work patterns of teachers as individual planners and implementers of the lessons. Teachers' teamwork, especially the planning of curriculum units in teacher teams, is primarily performed by means of talk. In this study, the core of analysis has been focused on team discourse of the teachers. Particularly, with the help of the discourse data, but also with the help of the interview and shadowing data, I have examined the emerging characteristics of the teacher teams in order to answer the question of in what preconditions the teacher teams may be pathbreakers of a new type of educational organization. Chapters 6, 7 and 8 analyzed the breaking of the traditional work patterns within the teams in terms of investigating the nature of the team members’ collaboration. One significant insight of this study is simply the fact that this study put on view the team talk and dialogue of the teachers. The talk of the team provided a window on the study of collaborative learning of its members. The analysis of the structural features of the discourse pointed out that the cooperation within the

team was successful in the 1993 Local Community team. The team shared the planning of a common theme. The elective courses team of 1994 coordinated fragmented elective courses. However, as the findings show, the development was not a matter of the inner development within the teams only. The boundaries of individual teaching work were opened within the school.

The analysis of the use of social languages showed that the organizational arrangements of the teams, the tasks of the teams, and the nature of the discourse all molded and modified each other. Particularly in the 1993 cooperative team, the seeds of new languages as self-critique talk reflected new emerging thinking models and work practices of the teams.

The analysis of the collaborative learning within the teams showed that the turning points of the cooperative planning process of the Local Community theme comprised two different levels. The team had a theoretical and ideological discussion at the beginning of their learning process, and it shared the planning of the broad Local Community theme. In the planning process, individual working practices of the teachers were broken. Together constructed together a shared object. During the coordinative planning of the elective courses, all eight teachers planned their courses by themselves. However, when evaluating the courses, the teachers took up the idea of the shared themes and decided to realize it in the future.

Chapter 9 explored the outward orientation of the teams, in other words, going beyond the traditional classroom and school boundaries to establish contacts with the surrounding society. Also this analysis pointed out the interconnection between the different team concepts, the organizational arrangements of the school, and the teams' use of network contacts in the planning and implementation of the curriculum units. The analysis showed, again, the significance of the nature of the team's object as the most crucial factor in network building. The findings showed that breaking the traditional work patterns of teachers by using network contacts results from building cooperatively a shared object.

Little & Mclaughin (1993) have called constrained individualism the specific type of individualism which occurs when teachers teach, plan, and generally work alone because of the administrative or other

situational constraints that present significant barriers or discouragement to their doing otherwise. Fullan (1995) has found that teachers seem to commit more easily to development projects in which the purpose is to increase teachers' participation in the decision-making and leadership of the school, but which do not overcome the norms of autonomy with regard to teaching. Woods et al. (1997) found in their study that "enforced" collaboration of the teachers tended to kill the "genuine" collaboration that had operated informally in their schools. In 1994, the school I studied was restructured into teams in order to break up the traditional individualism. Paradoxically, the findings show that the planning of the teachers remained individualistic: each teacher planned his or her course by him- or herself. One reason for this development may be that the orders to team came from above. It is noteworthy that the unofficial team worked together in a cooperative way.

In 1993, there was no established leadership in the team. The team had no chairperson. The teachers did not discuss leadership questions within the team. However, they planned and taught the Local Community unit together. In 1994, there was a leader for the elective courses team, the assistant principal. As shown in the analysis, the process of planning and procedure with the elective courses was clear routine to the teachers. They had to use different kinds of administrative forms to plan and evaluate the elective courses. Paradoxically, although the team had a leader, each teacher planned and taught individually his or her own elective course. As regard the team leadership, the crucial skill appears the team leader's or leaders' capability to facilitate dialogue when forming the team concept, organization of collaboration, and the shared object of the team.

This study has produced conceptual and practical tools for schools and their teacher teams to understand and develop practices of the school. The findings have significant practical implications for an school as a learning organization of both teachers and students. Easterby-Smith (1997) states that there is a limited amount of empirical research into organizational learning since it requires to design longitudinal research into learning processes. Engeström (1987) states that workplaces periodically face situations in which their internal contradictions demand a qualitative reorganization of the entire activity. When, for instance, a team or a school goes through such a reorganization and

constructs a historically new mode of practice for itself, it learns something that was not there at the outset.

Traditional learning theories regularly assume that things to be learnt are adopted from textbooks or work practices of more experienced and more skilled workers. Developmental work research focuses on qualitative changes in work. The qualitative change of teachers' work cannot be understood as mere adopting of knowledge and experience ready at hand. Qualitative change of work is characterized by a certain "leap to the unknown". The nature of collaborative learning was different during the planning trajectories of the two Finnish teams of the present study. The different patterns of collaborative learning may be interpreted with the help of Argyris & Schön's (1978) notion of a single-loop and double-loop learning as I suggested earlier. In the 1993 team, the learning occurred on two levels, at the general level, the turning points were connected with the definition of the concept theme-working and at a more specific level, with the construction and evaluation of the Local Community unit. Self-critique and theoretical talk enabled the evolving of the pedagogical idea during the planning trajectory. The collaborative learning process of the 1994 elective courses team included only one specific level, the level of the planning of the courses. There could be identified the single-loop kind of learning not so much self-critique and theoretical talk.

By recording and analyzing topics, concerns of the teacher team talk, teachers can become conscious of their activity and change the nature of their collaboration and instruction in practice (c.f., Wells, 1996). Nowadays, it is not possible for the teachers to find the needed knowledge solely from textbooks. Through collaboration with other teachers have to develop different types of learning opportunities for the students. As Little (1990), and Little & McLauglin (1993) have pointed out, joint work of teachers entails collective conceptions of autonomy, and support for the teachers' initiatives. By analyzing the social languages used in teachers' discourse it is possible to develop joint work with a shared "we" identity among teachers, and thus collective planning of curriculum units. The analysis of the network contacts produced nine categories of contacts which can be understood as instruments of teacher teams for network building outside the classroom. These categories can be used to reveal the developmental potentials of the team. For instance, it is useful to examine whether some instruments are neglected or overemphasized.

This study points out some potential areas for further work. When discussing what success is in curriculum planning, one can not pass the question of the quality of students' learning. The focus of this study has been to examine school as a workplace and the activity of teachers' in planning the curriculum units. The work processes of teachers and the learning processes of students are intertwined. In future studies, the focus may be shifted to the examination of the quality of the students' learning processes, and various tools connected to these learning processes.

DEVELOPMENTAL CYCLES, CONTRADICTIONS AND ZONES OF PROXIMAL DEVELOPMENT OF THE TEAMS

This study has shown the importance of different levels embedded in time and the development in work activities. In Chapter 3, I presented the general idea of a developmental cycle. Within those kinds of larger developmental cycles of the teams. I have analyzed the smaller trajectories of planning the curriculum units, which offered significant insights into the inner workings of the teacher teams' longer terms' developmental processes. Below, I will describe the developmental cycles of both Finnish teams to understand their developmental dynamics. I will examine the history of the founding of the teams to localize the contradictions that gave rise to the teams. Parallel to the historical analysis, findings on the everyday practices of the teams are interpreted, particularly the findings on strategically important turning points in the object formation of the teacher teams. Based on this examination, I will sketch the contradictions that became evident in the functioning of the teams and their emerging zones of proximal development.

The 1993 team

I started to study the 1993 team when the team was just creating its own model and was starting to function as a team and implement its model. The 1993 team members started to create their model based on a relatively clear need state. In their interviews, the teachers stressed that the team was founded to ease work and change the working pattern of teachers as individual planners and as executors of teaching and textbook-bound and 45-minute-lesson-bound workers. The following

excerpt from Anne's interview describes, from her perspective, the reason for founding the team.

Anne: *Actually, it all started when it seemed that numbers of students here in the third grade classes that we have three now at our school, er, these numbers will be a bit uneven. I mean, its [team's] strength sort of lies especially on all of the work that we'll be doing, to make things easier, and, hopefully, I'll then be able to help others as much as I can.* (8/25/19923)

Anne's third grade was the largest class in the school and she hoped for the team members to help her manage the teaching work.

In his interview (see the excerpt below), Pekka pointed out that the team was founded in order to develop the work practices of the teachers. He stressed the possibility of getting rid of the boundaries of the 45-minute lessons and the textbooks.

Pekka: First, there is the thing that when planning the themes you can get rid of 45 the minute lesson cycles, I mean that mathematics, that Finnish and that history. This is the first thing, and the other one is to get rid of book-centered teaching. You can use other materials, as well, other sources of information. (8/27/1993)

Also the principal stressed the importance of founding teams in order to develop the school work. He told he supported the founding of the team for the teachers to learn to cooperate and break the boundaries of their classrooms (see an excerpt of his interview below).

Principal: *There is the fact that the number of Anne's students has increased... I have supported the idea of the teachers working together. The most fruitful working pattern is the one where people openly work together and exchange experiences, even transfer students from one teacher to another, so that we end up with a more open system, that is, we have all the doors open, and even the separating walls will disappear.* (9/1/1993)

Based on these excerpts, it seems that the team was created to facilitate the teachers' work and enhance their collaboration since the number of the students within the grades were growing. The old instruments of the teachers as individual planners and executors of lessons and the

individual based division of labor were not able to answer the need to manage the growing number of students. In other words, one may identify, first, a contradiction between the new emergent object - the growing number of students as well as planning and implementing collective theme-based curriculum units to manage the growing number of students- and the old division of labor: each teacher was in charge of his or her class. Second, one may identify a contradiction between the new kind of object (growing number of students, collaborative curriculum planning) and the old instruments of the teachers (individual planning practices, relying of textbooks only etc.). These tensions led the team members to construct a new common object. As the findings of the four chapters show, the team started to create curriculum unit collaboratively. Thus, the object of the activity was emergent, and to achieve the new object the teachers needed to use new instruments of the collaborative curriculum planning. They wished to get rid of standard textbooks by planning curriculum units together. They also needed to break the individually based division of labor. As the findings show, the teachers created together the concept of theme-working as a basis of their team model.

In the process of bringing into realization the Local Community theme, the team's intended vision of the collaborative curriculum units were revised and enriched. Applying a new model often takes place as partial solutions, and different kinds of problems will arise. In that way the "given new" model is transformed to "created new" through resolving the practical contradictions. In their meetings, the team defined and settled for a model of their own, and named it theme-working. Recall that the school influenced the ideas of the reform pedagogue Mikael Soininen. The pedagogical idea of theme-working was to open the classroom in such a way that students became involved in different situations and different people. In their pedagogy, the team members stressed the idea that the genuine possibility of choice is the source of the students' motivation. As Chapter 8 showed, when applying their new model of activity, the teachers articulated the tensions of the new activity more clearly also in their team meetings. First, the tension seemed to be between the control of the students' choices versus offering them genuine free choices. The original pedagogical idea that a genuine possibility of choice is the source of the students' motivation did not work in practice, when the teachers were implementing the Local Community theme. There was a need to focus more on questions of the students' learning. Second, there seemed to be tension between

opening up the classroom versus ensuring the physical safety of the students. The teaching should have taken place in the close surroundings of the school, but, on the other hand, the rules of the administration did not allow for the students to go outside the school without their teacher. Third, there seemed to be tension between theme-working versus the overall teaching. The teachers' wanted to organize the theme-working in such a way that it would work well but, on the other hand, they also wanted to organize the normal lessons so that they would work. There was a need to widen their object, theme-working, to include the overall teaching. Recall that the 1993 team was relatively autonomous and separate from the rest of the school.

In Chapter 6, I outlined tentatively the planning-activity systems of the studied teams focusing primarily on their central instrument (or instrumentality). Below, in Figure 10.1., with the help of the conceptual model of an activity system, based on the findings of the study, I will specify the other components of the 1993 team's planning-activity system. In the model, I will localize the contradictions of the 1993 team's activity. The hypothesized inner contradictions of the activity systems are depicted in the model using the two-headed lightning-shaped arrows.

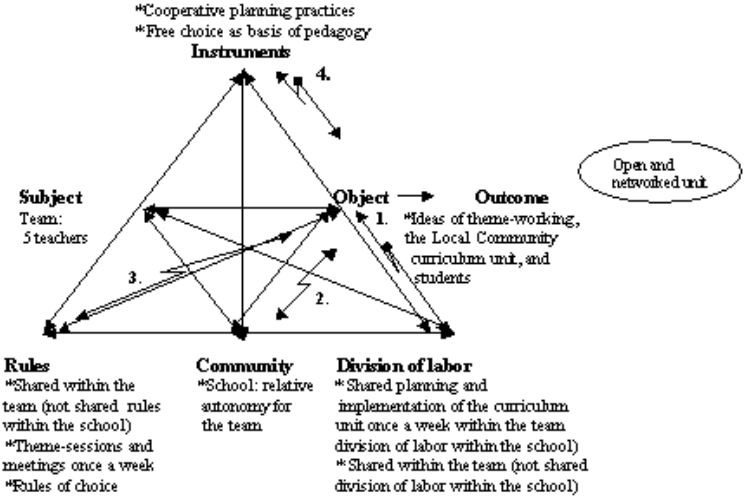


Figure 10.1. The contradictions of the 1993 team

Figure 10.1. The contradictions of the 1993 team

When a new element enters the activity system from the outside, contradictions appear between the old and the new elements. Here, a new kind of object emerged, that is, a collective local curriculum. Taking the perspective of the team as the subject of this activity, the object of the planning activity was twofold: on the one hand, making the collective curriculum, including the ideas of theme-working and the Local Community theme and, on the other hand, the students.

New contradictions emerged when the team responded to the need to plan collectively the curriculum units. First, as an object, the collective curriculum-making was new but also "narrow" in the regard that the theme-working sessions were being implemented only once a week, three hours at a time. As the findings of the turning points of object formation showed, the theme-working sessions were in conflict with the individually implemented teaching activity. During regular teaching, the teachers taught individually. In other words, there was a systemic contradiction between the object and the division of labor which was too narrow in the light of the teachers' collaboration taking place in practice only once a week. There was a need to widen the theme-working sessions and division of labor of the teachers to expand theme-working kind of instruction during regular teaching.

Second, recall that when evaluating the Local Community theme, Leila stated in her interview that theme-working stood apart from the day and the week, it was "a special thing". In the light of her interview, the community was too narrow. Other teachers in the school did not participate in theme-working sessions and they did not understand the meaning of the team's collective curriculum planning and implementation as a new kind of pedagogy. In other words, there was a need to expand theme-working to include the whole school. Thus, there was a contradiction between the emergent object and the narrow community.

Third, a systemic contradiction arose between the emergent object and the rules. As the turning points of the object formation of the 1993 team showed, there was a tension between opening up the classroom (students going outside the school on their own) and ensuring the safety of the students. This tension sharpened since the team was separate from the rest of school, and there were no rules yet of managing the widening of the students' learning environment and expanding it outside their classrooms.

Fourthly, there emerged a contradiction between the instruments of the team - the insufficient pedagogy of the free choice for the students as a basis of student motivation, and the emergent object – a new kind of a collective curriculum unit. The idea of the theme-working pedagogy was in the process of constant development. There was a need to develop the idea of theme-working better to accommodate the students' learning processes.

These contradictions point toward a zone of proximal development for the team. As shown in the analysis of the turning points of the object formation of the team, the teachers sketched new solutions to develop their team model, theme-working and the Local Community theme, in their meetings. In these discussions, the zone of proximal development of the team was articulated in a preliminary way. In order to move to a new developmental phase, the team needed to take up and discuss the present contradictions.

As the findings showed, not all students were motivated to work although they had the freedom to choose the subtheme in which to participate. The team elaborated and created the concept of theme-working, and also evaluated and re-elaborated the concept to include the facilitation of students' learning as the basis of their pedagogy. The teachers had endeavored to expand the teachers' collaboration as well. In their meetings, the teachers agreed to change their division of work to collaborate along the line of theme-working during their regular teaching, as well. The teachers agreed that should get to know the students better by long-term interaction with them and by exchanging information about them.

However, the developmental cycle of the 1993 team broke in the sense that, in 1994, school-wide reorganization and formation of teams took place.

The 1994 team

I started to study the 1994 team in the phase in which the elective courses teams were just being founded. Recall that the teams were founded by administration, and the task of the teams was to plan elective courses. However, the teachers had freedom to choose the contents of the elective courses. In their interviews, the teachers who

had not been members of the 1993 team expressed their ignorance of why the elective courses teams had been founded, as the excerpts of Maija's and Hanna's interviews show.

Maija: *I wasn't there in the planning of this elective courses system. So I don't know what the idea behind it is.* (10/26/1994)

Hanna: *I sure don't know the reason why these teams have been set up.* (10/31/1994)

In the autumn of 1994, I gave to the members of the 1993 team some feedback about their planning of the Local Community theme. The feedback contained an analysis of the structural features of the team discourse, the notion of the planning trajectory and hypothesized contradictions of the team's activity system. In the feedback session, the team members evaluated the problems of implementation of the Local Community theme.

Anne: *I would think that when we now have these grade levels in our elective courses [1-2, 3-4, and 5-6 grades form the teams] it will help our planning work a lot. I mean one can't manage all the grades from three to six.*

Leila: *Yes, it is much more difficult to plan instruction from third-to-sixth grade students than when you have same age level there. This is rather a natural division regarding the ages of students within our elective courses.* (9/15/1994)

Above, both Anne and Leila evaluated that during the Local Community theme it had been difficult to manage instruction with the students from grades three to six. The division into grades 1-2, 3-4 and 5-6 as it was in the elective courses model, was more manageable according to these teachers.

Actually, a much more disciplined pattern emerged in the meetings in 1994 than in those of 1993. The planning meetings were held before the implementation and one evaluation meeting was held after the implementation. Now, it was the task of the chairperson and the secretary of the meeting, namely the assistant principal of the school, to organize the meetings and write down the decisions. In the course of the planning, the chairperson filled in different kinds of administrative forms. Below, there is an excerpt of Pekka's interview.

Pekka: *Now we don't have those weekly meetings, but I think that this elective courses system is working better in terms of our entire school. Last year, during the theme-working, we were in a hurry, maybe we had too many meetings. It is now much clearer.* (19/31/1994)

According to Pekka, who was a member of both the 1993 and 1994 teams, the elective courses model appeared more structured than the theme-working one of 1993 in the respect that the planning practices were disciplined and commonly shared within the school.

In 1994, I could not identify as a clear a need state as in 1993 team. Some teachers did not even know the reason for the founding of the elective courses teams. This may be a reason why the teachers were not motivated in participating in every meeting. As stated in the findings, there were only four teachers present in the evaluation meeting of the elective courses period. Each teacher could either participate or stay away without informing anyone in advance. The teachers who had been members of the 1993 team saw that the present elective courses model functioned better than the theme-working model, in regarding with the expanded community of the teachers. However, three of the teachers also formed an unofficial team.

The elective courses teams had been founded from above. The principal revealed that the elective courses teams had been founded as an administrative measure. He told that the making of the local curriculum had been the original incentive to found teams. Together with the assistant principal he had decided to set up all the teachers into three teams in accordance with the adjacent grade levels. Below, there is given an excerpt from the principal's interview.

Principal: *The founding of the elective courses teams was based on the discussion connected to the local curriculum making, I mean the flexibility to plan different kinds of elective courses. The idea was that all the teachers would participate in some themes. We decided to plan the elective courses in six-week periods. Actually, I do see the elective courses teams as a continuation to the 1993 team. It's somewhat useful to present the matters together, and plan them, and also to assess, and think over. It certainly will benefit the kids, as well.* (11/3/1994)

As the excerpt shows, the principal indicated that the elective courses team model was a continuation of the model of the 1993 team. However recall that in the separate building, there still functioned the "unofficial" team of three members of the 993 team.

The task of the teams was to plan the elective courses, and the team I studied took this task for granted. It did not discuss the principles of the model in its meetings, as the 1993 team did. The principal hoped that the founding of the teams would enhance cooperation between the teachers. It seems that the teams were founded in order to solve the contradiction between the fragmented teachers' community and the emergent object (the elective courses for the students, flexibility in the local curriculum-making). However, this contradiction was probably never clearly articulated or widely experienced as a pressing need among the teachers.

In the process of realizing the elective courses , the teachers articulated the tensions that had surfaced in the new activity in their team meetings, as they had done in the 1993 meetings. First, tension seemed to appear between the individual and collaborative planning. This tension occurred for the reason that the teachers who had been members of the 1993 teams had become used to planning together with each other. Second, a tension was identified between the idea of a shared theme and fragmented courses. The elective courses period did not comprehend a common, shared theme. Third, a tension was identified between the ideologies of opening up the classroom as a measure of pedagogy and opening it as a tool to reduce the group sizes of the students. Fourth, when the teachers discussed the principles of the students' group work, a tension seemed to emerge between the idea of organizing the group work without hierarchy and organizing it in a hierarchical way.

Below, in Figure 10.2., I will localize the contradictions of the 1994 team's activity. The hypothesized inner contradictions of the activity system are depicted in the model (italics).

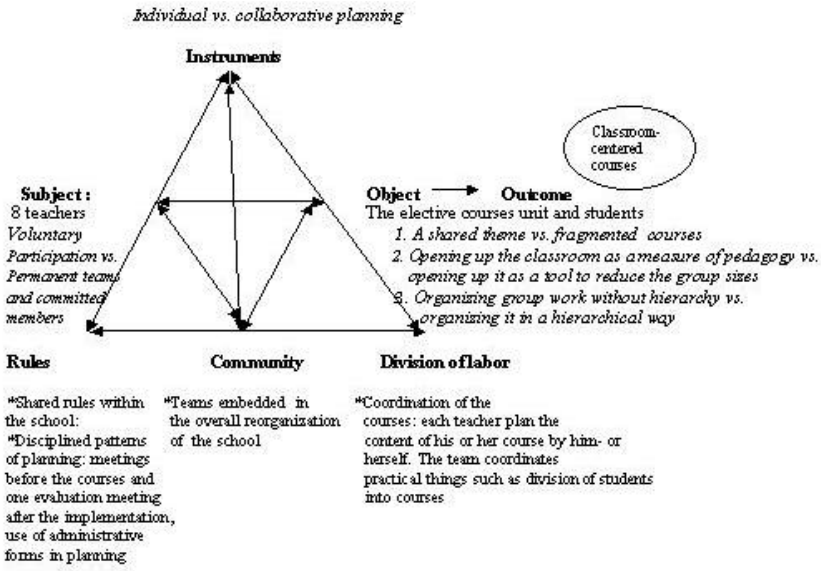


Figure 10.2. The contradictions of the 1994 team

As I pointed out above the 1994 elective courses teams were founded based on administrative measures. The teams were not based on a clearly articulated or widely experienced need among the teachers. Thus, the identified contradictions functioned as inner contradictions within elements of an activity system. They were latent contradiction of dual nature within the elements.

I identified inner contradictions within the object, the instruments and the subject. Within the object I identified contradictions between the shared theme and fragmented elective courses, between opening up the classroom as a measure of pedagogy and opening up it as a tool to reduce the group sizes of the students; and between organizing group work of the students without hierarchy versus organizing it in a hierarchical way. Within the instruments, I identified a contradiction

between individual and collaborative planning. Within the subject I identified a contradiction between a task-force kind of team in which participation in the teamwork was voluntary, and a permanent team structure in which the team members would be committed to collaborative planning and implementing of the curriculum units. Now every teacher could either participate or stay away from the team without informing anyone in advance. It was not easy to plan a broader team, although there was a need to connect the elective courses to the more encompassing projects of the school, since there was no certainty about the attendance of the team. The team members did not work closely together in their regular teaching; instead, they came together to coordinate the elective courses periods. The teachers knew that the group was temporary and would disband after completing its task.

During the turning points of the object formation, preliminary ideas toward the zone of proximal development of the 1994 team were articulated. In their evaluation meeting, the team formulated the idea of the elective courses to encompass a shared theme and work-study outside the school , and tried to reconceptualize the idea of students' group work.

I followed the work of only one six-week elective courses period at the very beginning of the implementation of the elective courses model. A crucial question seems to be whether the expansion of the organizational scope and community will enable the development of new object formation in the team , and whether these task force teams would develop new kinds of collaborative instruments and a shared pedagogy.

RELIABILITY AND VALIDITY OF THE STUDY

When studying learning and development, it is necessary to examine the teams longitudinally (cf. Easterby-Smith,1997). In my study, I examined the planning processes of curriculum-making of the teams for over two years. The changes and development can be seen more clearly over two planning processes than during one process only.

Kirk & Miller (1986) state that in ethnographic research the reliability of research results refers to whether or not a researcher would expect to obtain the same findings if he or she tried again in the same way. The

validity of research refers to the substantive appropriateness of the interpretation of observations.

Below, I will examine the trustworthiness of this study from four different angles, namely, from the viewpoint of data collection, from the viewpoint coding and translating the data, from the viewpoint of the methods of analysis of the study, and from the viewpoint of comparison between different planning processes and different cultures, Finally, I will briefly evaluate how developmental work research functioned in my study.

First, the collection of the data of this study was based on the notion of a planning trajectory. The trajectories of both years included the emergence of the idea of the curriculum units, their planning and implementation processes, and the follow-up of the implementations. The idea of the planning trajectory enabled collection of comparable data during two months in both years. Thus, it was possible to use the whole collected data as a basis for the findings.

The data of the research were collected in three different ways and in different phases of the planning processes of the curriculum units (see Figure 9.1.). In Chapter 9, I elaborated on the methodological questions with regard to the differences of the three types of data. I argued that to study in a valid and reliable way, the use of the team's network contacts, it is necessary to compare and combine the different kinds of data (see also Guba & Lincoln, 1985). When taken alone, each type of data showed its specific strengths and weaknesses (The are shown in table 9.2.). Heath (1997), and Jordan & Henderson (1994) stress that for the analysis of discourse and social interaction, audio and video recordings have considerable advantages over more conventional forms of data , such as field notes or responses to questionnaires, since recordings enable rigorous examination and analyses of the raw data. Through three types of data I secured that the examined issues were checked from several sources whenever possible.

Schwartzman (1989) states that meetings have been largely taken for granted by researchers. In my study, the core data of the analysis consist of team discourse in meetings. The detailed study of meetings was complemented by observation of classroom practices and interviews with the teachers.

Second, all the audio tapes of the meetings were transcribed. Structural features, such as turns at talk and the use of the moods, of the meeting transcripts were coded together with the two research assistants. Different interpretations by the researcher and the assistants were solved by discussing them. Translating data from Finnish into English was not easy because of the incomplete colloquial language typical of the discourse in the teams. The teachers also resorted to the Helsinki slang which made the translation difficult. The translation was made by a sworn translator.

Third, I used different methods of analysis in each findings chapter. I presented the criteria for identifying the structural features of discourse (Chapter 6), the social languages and their variations (Chapter 7), the turning points of object formation (Chapter 8) and the network contacts of the teacher teams (Chapter 9). I also presented concrete examples to illustrate the criteria of the categories.

Fourth, a lot has been written on problems of comparative qualitative and quantitative comparisons and international comparison in particular (e.g., Bereday, 1964; Harris, 1980; Ragin, 1989; Smelser, 1976). The researchers discuss issues, such as the heterogeneity of research sites and the influence of the historical and cultural background on the research sites. In this study, the comparison between the two cultures was based on the qualitatively and quantitative findings reported in the dissertation of Claire Buchwald (1995). The advantage from the viewpoint of comparison was the fact that the Finnish and the American teacher teams were rather much alike. For example, the American and the Finnish teams both had five teachers in the beginning of the study, the teams were founded by the teachers' own initiatives, and they both had the same number of students from same grade levels. Both the American and the Finnish teacher teams planned and implemented new curriculum units.

The comparison of the activity systems of the teams is an important methodological question. This comparison was not understood here as a laboratory-test-like comparison. As stated before, the problem of this traditional idea in the study of teams is that the very founding of the teams typically puts the whole organization into motion. If one studies the talk and evolution of teams, one can not expect the organizational structure to remain stable. For instance, Enerstvedt (1989) stresses that the ideal of identical conditions is an illusion, and no matter how

controlled the conditions are, measurements vary. For instance, if the members of the teams change, this does not mean that you can not compare the teams with each other. As Enersveldt (1989) stresses, observations and measurements are not independent of the historical context.

The comparison between two cultures here consisted mostly of the systematic comparison of the formal features (e.g., turns at talk) of the talk in the teacher teams, thus aiming to reveal the similarities and differences on the planning discourse of the teams. While comparisons of the teams were being made, the analysis was being conducted close to the data , presenting excerpts from it. The interpretation of the differences in the planning processes was mainly performed with the help of the activity systems of the teams. The teams' activity systems were the fundamental unit of analysis.

The examination of the two Finnish planning processes enables us here, first, to examine the relationship between the two different team concepts regarding the use of network contacts of these two teams and, second, the testing of the research methodology in the sense of how well the analysis framework of the network contacts and the developed nine categories identify the differences in network building, in each year. It is possible to examine how the network contacts of the teachers changed as the organization of the teachers' collaboration pattern was changed within the school.

Finally, in drawing together the findings, it was helpful to localize with the help of the developmental cycle and the model of an activity system contradictions behind the founding of the teams and contradictions that emerged in the work of the teams. The use of these tools of developmental work research helped me to reveal the developmental dynamics of the teacher teams and their attempts to transform their own work.

The developmental work research studies have often produced more "interventionistic" than my study. In 1993, my study started in a phase when the teams had already been created, and, thus, my analysis was focused on the creation and functioning of the new model. However, the 1993 teacher team members received also feedback about contradictions of their teamwork.

The problem with the traditional idea of generalizability is that it only recognizes stable structures of work activity. In developmental work research, the interest is on the change and development of work activity. Development often first manifests itself as unusual deviations. As Engeström (1995) states, the generalizability of results is seen as a pragmatic question. When generalized, the results do not remain unchanged. They themselves become objects of revision when they move to new circumstances. Thus, comparison between different teams and between cultures, in this study, enhances trustworthiness, since, otherwise there would be a danger of the researcher making too far-reaching generalizations on the basis of data gained from one team only.

From the point of view of developmental work research, the study offers important methodological lessons. First, I am approaching the work activity of the teacher teams as if they were onions being peeled layer by layer, recognizing that different layers require different methods and conceptual tools. The first analysis largely focused on the relatively formal, structural features of spoken discourse. The analyses showed that careful attention to even the outer layers of the onion may be of benefit to the subsequent steps. The analysis of the social languages and collaborative learning within the teams as well as the use of network contacts outward from the teams added dimension to the picture of the work activity of the teacher teams.

Second, I developed and applied a set of intermediate conceptual tools in my analysis. These intermediate tools were mostly centered around the analysis of the discourse as a central instrument of the teams. They include an identification of the concerns of the discourse, an identification of the social languages, an identification of turning points of discourse, and an identification of network contact categories in the teacher teams.

11. EPILOGUE

What is the meaning and significance of this study? How has the teamwork of the teachers developed in the school after the study? I interviewed one of my informant teachers, Anne, once a year, in 1995-1998. I have also interviewed the principal of the school in 1997.

In 1994, when the study ended, the findings showed, on the one hand, that teamwork was the adopted practice of the whole school, but, on the other hand, that the working practices of the teachers were coordinative and individual-based. Recall that the shadowing data revealed the cooperative interaction of the unofficial team of Leila, Anne and Riku (they all had been members of the 1993 team). Members of this unofficial team worked in locations near each other, and their work resembled the cooperative practices of the 1993 team. In what way do the elective courses model of the 1994 team and the theme-working of the 1993 team influence and inspire each other?

In his interview in 1997, the principal reflected on the elective courses model as follows.

Principal: We don't discuss any more the elective courses in terms of whether the system itself is necessary. In the beginning we had this kind of discussion. At some phase, we had various kinds of forms, and it was too formal a system. Now we have made the evaluation discussions informally, they are not obliged to fulfil any formal requirements. We have these evaluation discussion whenever we need them. (1/14/1997)

The principal told that the elective courses teams have become permanent. Recall that, in 1994, the planning practices of the teachers were disciplined in the sense that they used different kinds of administrative forms to plan and evaluate the elective courses. Now the school had given up the forms.

The interviews with Anne reveal that the present teamwork of the teachers includes elements of both the elective courses and the theme-working model. The teams have been under constant development. The teachers have not given up either model, but they have developed on different kinds of team solutions for different situations and needs. Below, there is an excerpt from Anne's interview in 1998.

Anne: Nowadays, we have in our school elective courses teams based on the grade levels 1-2, 3-4, and 5-6 as we have had even from year 1994. Furthermore, we have also unofficial teams. We have so many classroom buildings. Those teachers who are situated near each other form a team of their own planning teaching and solving problems together. They have outlined their activity according to their own wishes. These days we are checking officially our local curriculum, and this work is tying us together even more closely, I mean the teams which are connected to this checking work are compulsory. But, otherwise, the teams plan their tasks themselves. The teamwork in our school is continuously evolving and we have discussed it continuously. We have had also joint team meetings between all of the school's teams, perhaps three times during this term. In these joint meetings we have evaluated the activity of each team, their development work and the objective toward which they are heading. (5/4/1998)

In 1998, as the excerpt shows, there were elective courses teams, teams based on physical locations, knotworking kind of interaction, and different temporary task force teams for different projects. The teachers have elaborated on their working practices in depth, as well. The nature of the elective courses has evolved in the school. Below, Anne tells about the nature of the elective courses team in which she participated in 1998.

Anne: Well, I have been participating during the entire year in such an elective courses team in which we have had two second grade classes and two first grade classes. It is working very well. We planned these elective courses to base on the "external world" theme. It lasted for the entire year and it was based on this external world theme. I myself had the "world of movement" as a subtheme. It was nice since I was able to notice the needs of the student groups. I like it very much. It will help the working of the teachers, planning work is manageable of all teams as you need not jump into new things constantly. We have tried to sell our model other teams, as well, since it really improves the planning work of the teachers a great deal. We have discussed this in the joint meetings. (5/4/1998)

As the above excerpt illustrates, the elective courses team of Anne's had included a shared broader theme, the "external world" including subthemes and lasting the whole school year. The team had planned together the broader team. Anne had led the "world of movement" subtheme during the whole school year. It is noteworthy that she stressed both the learning of the students and the collective planning of the teachers as a benefit of the shared theme. It is noteworthy, as well, that the teachers had shared their experiences of that elective courses model with the other teachers in the school.

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Appendix 1. Frequency of types of turn-taking in the Finnish and American teacher teams during both years

FINLAND 1993 Exchange	**M 1 f (%)**	**M 3 f (%)**	**M 12 f (%)**		**Total f (%)**
Turns followed by pause	9 (18%)	130 (19%)	40 (22%)		209 (19%)
Turns without pause	136 (55%)	400 (56%)	97 (53%)		614 (56%)
Simultaneous turns	43 (21%)	130 (19%)	32 (18%)		205 (19%)
Interrupted turns	12 (6%)	40 (6%)	13 (7%)		65 (6%)
Total	**211 (100)**	**700 (100)**	**182 (100)**		**1093 (100)**
USA 1992 Exchange	**M 1 f (%)**	**M 2 f (%)**	**M 3 f (%)**	**M 4 f (%)**	**Total f (%)**
Turns followed by pause	78 (41%)	49 (30%)	54 (35%)	64 (57 %)	245 (40%)
Turns without pause	42 (22%)	28 (17%)	27 (17%)	19 (17%)	116 (19%)
Simultaneous turns	70 (36%)	72 (44%)	57 (37%)	19 (21 %)	218 (35%)
Interrupted turns	2 (1%)	15 (9%)	17 (11%)	6 (5%)	40 (6%)
Total	**192 (100)**	**164 (100)**	**155 (100)**	**108 (100)**	**619 (100)**
FINLAND 1994 Exchange	**M1 f (%)**	**M2 f (%)**	**M3 f (%)**	**M4 f (%)**	**Total f (%)**
Turns followed by pause	160 (50%)	203 (62%)	590 (56%)	401 (61%)	1354 (58%)
Turns without pause	57 (18%)	54 (17%)	155 (15%)	127 (19%)	393 (17%)
Simultaneous turns	89 (28%)	55 (17%)	268 (26%)	108 (16%)	520 (22%)
Interrupted turns	12 (4%)	12 (4%)	36 (3%)	23 (4%)	83 (3%)
Total	**318 (100)**	**324 (100)**	**1049 (100)**	**659 (100)**	**350 (100)**
USA 1994 Exchange	**M1 f (%)**	**M2 f (%)**	**M3 f (%)**		**Total f (%)**
Turns followed by pause	67 (54%)	51 (39%)	84 (52%)		202 (48%)
Turns without pause	16 (13%)	32 (25%)	18 (11%)		66 (16%)
Simultaneous turns	30 (24%)	36 (28%)	56 (34%)		122 (29%)
Interrupted turns	12 (9%)	11 (8%)	5 (3%)		28 (7%)
Total	**125 (100)**	**130 (100)**	**163 (100)**		**418 (100)**

Appendix 2. Relative frequencies of moods of the Finnish and the American teacher team discourse

FINLAND 1993 **Moods**	**M1** **f**	**(%)**	**M3** **f**	**(%)**	**M12** **f**	**(%)**		**TOTAL** **f**	**(%)**
Indicative	295	(76%)	1242	(91%)	323	(83%)		1860	(87%)
Imperative	9	(2%)	18	(1%)	2	(0%)		29	(1%)
Indicative working as conditional	40	(10%)	38	(3%)	12	(3%)		90	(4%)
Conditional	45	(12%)	72	(3%)	53	(14%)		170	(8%)
Total	**389**	**(100)**	**1370**	**(100)**	**390**	**(100)**		**2149**	**(100)**
USA 1992 **Moods**	**M1** **f**	**(%)**	**M2** **f**	**(%)**	**M3** **f**	**(%)**	**M 4** **f** **(%)**	**TOTAL** **f**	**(%)**
Indicative	136	(45%)	99	(32%)	195	(58%)	86 (48%)	516	(46%)
Conditional working (1%) as indicative	1	(1%) 4	0	(0%)	4	(1%)	2 (1%)	7	(1%)
Imperative	2	(1%)	1	(1%)	1	(1%)	0 (0%)	4	(1%)
Indicative working as conditional	36	(12%)	33	(11%)	25	(7%)	25 (14%)	119	(10%)
Conditional	131	(42%)	176	(57%)	113	(33%)	65 (37%)	485	(43%)
Total	**306**	**(100)**	**309**	**(100)**	**338**	**(100)**	**178 (100)**	**1131**	**(100)**
FINLAND 1994 **Moods**	**M1** **f**	**(%)**	**M2** **f**	**(%)**	**M3** **f**	**(%)**	**M4** **f** **(%)**	**TOTAL** **f**	**(%)**
Imperative	13	(3%)	15	(4%)	60	(5%)	17 (2%)	105	(4%)
Conditional	101	(27%)	54	13%)	116	(10%)	45 (6%)	316	(12%)
Indicative	249	(66%)	319	(81%)	991	(83%)	670 (90%)	2229	(82%)
Indicative working as conditional	16	(4%)	7	(2%)	19	(2%)	17 (2%)	59	(2%)
Conditional working as indicative	0	(0%)	0	(0%)	0	(0%)	0 (0%)	0	(0%)
Total	379	(100)	395	(100)	1186	(100)	749 (100)	2709	(100)
USA 1994 **Moods**	**M1** **f**	**(%)**	**M2** **f**	**(%)**	**M3** **f**	**(%)**		**TOTAL** **f**	**(%)**
Imperative	0	(0%)	2	(1%)	3	(1%)		5	(1%)
Conditional	74	(30%)	218	(52%)	44	(18%)		336	(37%)
Indicative	145	(60%)	165	(40%)	168	(69%)		478	(53%)
Indicative working as conditional	21	(9%)	27	(7%)	27	(11%)		75	(8%)
Conditional working as indicative	2	(1%)	4	(0%)	1	(1%)		7	(1%)
Total	**242**	**(100)**	**416**	**(100)**	**243**	**(100)**		**901**	**(100)**