

Research groups or communities can be seen as environments for work and learning, where collective demands, including intellectual agendas, are crucial for long-term success. This kind of work environment is often described as an intellectual community in which professors work closely with other professors, researchers, postdoctoral fellows, and Ph.D. students. Research leadership is very important when it comes to welding these kinds of work communities and creating productive learning conditions for research recruits.

Most studies of research communities are either historical (Kvale, 1997) or more structural analyses in which publishing patterns are identified (Kyvik & Sivertsen, 2005). However, in studies conducted by Latour and Woolgar (1986), we can see descriptions of “everyday life.” Here, research work is described as a social activity, situated in practice, and strongly attached to theory, methods, and instruments, in other words, how scientific knowledge is produced (Latour, 1987; Pickering, 1995) or the machinery of knowledge construction, (Knorr Cetina, 1999). These studies are based on an epistemic perspective (Saari, 2003). Following in this tradition, we try to understand how the everyday life of research is unfolding and how the research community defines and follows its objects of research (Saari, 2003). In our study, we have chosen to look specifically at research leadership, aiming to understand how productive research communities are developed and maintained, and how Ph.D. students are integrated into these communities. Our study is based on the following questions:

1. How does one establish a joint object in a research community?
2. How are standards developed, and to what degree do these standards bring structure to the researchers’ work and learning?
3. What kinds of implications will a joint object have for Ph.D. students’ learning environment?

We have chosen two different research communities, and our analyses of the practices in these settings are based on interviews, observations, and document data. Both communities are recognized both nationally and internationally, and they have been awarded several large research grants. One of the communities is part of a larger research center. Both communities work within what we can describe as text-producing research, which means within a genre where the text itself and the arguments within the text are considered highly significant.

The aims of the chapter are twofold. First, we will give a set of empirical descriptions that can provide more insight into how productive research groups actually work and why they structure their research in specific

ways. Second, we will demonstrate that cultural-historical activity theory gives us very sensitive analytic tools to understand how research groups construct their objects of research and why they do so.

CULTURAL-HISTORICAL ACTIVITY THEORY: A PERSPECTIVE AND SOME CONCEPTS

A theoretical perspective that gives us the opportunity to understand the constitution of a research community is cultural-historical activity theory (Engeström, 1987; Saari, 2003). On the basis of a cultural and historical understanding of human genesis through the concept of activity, a set of conceptual terms has been developed to understand how different communities and institutions develop through short-term actions and long cycles of activities. Concepts like tension, conflicts, breakdowns, and contradictions are emphasized, and the term *object* is especially significant (Engeström, 1987; Kaptelinin, 2005; Leont'ev, 1978) for understanding how change takes place and what direction it takes. In moment-by-moment interactions, tensions become visible at the empirical level, but in order to understand and explain how and why tensions occur, we must include institutional and historical analysis of long-term activities. Contradiction is seen as a feature that arises within these long cycles of activity.

An object is something potentially shared by several parties (Engeström, 1987). We make a distinction between two aspects of the object. The first applies to objects that work over a longer period of time and are part of institutional structures. These may be routines, standards, or procedures (Miettinen & Virkkunen, 2005). The other dimensions of the term *object* are the procedural aspects. When we enter into an activity, we must find objects that enable us to coordinate our actions. In research communities, these will often be texts, different kinds of methods, or methodological orientations that become the objects we use to coordinate our activities. More precisely, we must make decisions regarding the choice of theory or perspective, concepts, interpretation of data (either qualitative or quantitative), what to include in a summary of previous research, how far to stretch the analysis (in relation to reliability criteria as well as validity), and how to connect theory to data within the field of research.

The discipline of research, the epistemic area, and the research community will, of course, provide guidance with respect to several of the choices to be made, but within the actual research we still have to make many decisions on a "microlevel." These more general aspects will – in relation to the different phases a text goes through – not necessarily be the same,

so in every single research project these aspects must be concretized and solutions must be developed.

The different aspects of the term *object* give us the opportunity to understand how structures and processes work over time within a research community. When using the expression *structures*, we mean standards, conventions, and genres within the field of research. One example is the manner in which one writes articles for certain scholarly journals. This can be seen as routine in other institutions; i.e., the routines are sturdy and seldom change. When using the expression *processes*, we mean the set of choices we have pointed to in this section, which form the core of the research work. Together, structures and processes create different kinds of communities of work and learning (Engeström, 2001; Leont'ev, 1978; Toiviainen, 2003). Given the discussion of objects as a concept, we would like to emphasize that this concept might help us understand how historical aspects are related to participants' meaning-making, which means that we can connect different timescales or what we can call multiple levels of human genesis (Engeström, 1987; Ludvigsen, Rasmussen, Krange, Moen, & Middleton, in press). In the next section, we will describe this on an empirical level.

METHODICAL ORIENTATION AND DATA COLLECTION

In this study, we chose to look at two communities, both consisting of professors, senior researchers, associate professors, postdoctoral researchers, and Ph.D. students. The size of these communities varies, but both can be described as having a collective organization of research. We chose one community within what we define as the humanities and one community within computer science. This difference offers possibilities for contrast, and at the same time, the communities exhibit some common traits with regard to how the research is organized. We used interviews as a primary database for our analysis for this chapter. We conducted 25 interviews, which were transcribed.

The interview guide consisted of the following main topics: biography, research community, research topics, research leadership (supervision situation), expectations (standards), aims, and engagement. Within each of these main topics, there were specifying questions. The interview data we collected gives us the opportunity to scrutinize and understand how the informants understand and potentially act in accordance with the topics they were asked about over longer stretches of time. These data

will, to a limited degree, give answers about what exactly they do. For this, different kinds of data, for example, video recordings, are necessary. In this chapter, we have used data concerning a limited set of topics. The selected topics are aimed at the organization of the research community, research leadership, and the establishment of a joint focus. The significance this might have for research recruits is what we try to bring into focus.

EMPIRICAL ANALYSIS: SOME COMMON TRAITS AND DIFFERENCES

First, we will suggest some common traits and differences found in the two communities. All the research leaders emphasized the need for a joint focus and the need to establish it through work forms and publications. This may include concepts, methods, projects, or theoretical positions.

Both communities wished to make a substantial contribution to the research field, as well as take part in setting the agenda for forthcoming research priorities in their areas. In each community, the senior researchers spend a lot of time building the environment; that is, the research leadership engages in professional and economic decisions, as well as social organization. Research leadership is, for all interviewed leaders, a matter of moving within vertical axes from political and strategic decisions at the management level to actually being engaged in research, working with texts with other senior colleagues and Ph.D. students. The horizontal aspects of the activities are related to how the research is organized and enacted through participation in multiple activity systems (Engeström, 1987, 2004). By *multiple activity systems*, we mean that researchers and research students engage in research activities in a center or a department, but also in workshops, conferences, and other venues, which implies moving between the activity systems that constitute the larger field of knowledge.

Description of Research Community 1

This research community is based in media and communication research. It is situated at a university, and its roots go back to the establishment of this discipline at the university. Two research leaders (professors), two postdoctoral researchers, and four Ph.D. students are associated with this research community. In addition to this core of eight people, there are also a number of master's students.

Organization and Gradual Development

We will look at the organization and gradual development of the project from the perspective of the participants in this research community. This group is characterized by the fact that other researchers keep joining it.

Three aspects seem central to the research organization: First, each subproject may be dispersed. Second, these dispersed subprojects must contribute to the cumulative work within the research community. Third, integration appears to be a challenge, especially for research leader A:

One has, in different ways, an idea, then one gets together, and then one has a small steering committee which first decides what to research . . . , and subsequently one will work together in different ways in the writing part. The idea is that the accumulative effect in the project, the gathering and finding of new, interesting issues, happens there, primarily. And the development of this paramount umbrella should also happen there, as much as possible.

Here, the research leader discusses how he tries to generate a common object for the research, the shared writing process being seen as essential. Nobody should own the text, and contributions from all participants are evaluated seriously and critically. A Ph.D. student (F) describes the research leaders' focus like this:

The challenge is to find topics which everybody can work with. So we write lots of articles. This may not be very central for lots of people, but it's been immensely stimulating, because everybody has had enough interest in it to actually spend time on it. They have also managed to take advantage of each person's knowledge in a very good way, so that we've had good constellations – meaning we've shared the tasks between us in clever ways, which has made working together good.

The organization, in which one party uses the individual project as a base and then creates cross-writing groups, is seen by several of the participants as complicated and demanding. However, it provides an opportunity for in-depth study of some projects involving more than the owner, and at the same time the current projects' contribution to the mutual agenda can be articulated.

The timeline for this type of research is clearly strategic and long term. Every single contribution is valuable, and at the same time the cumulative effect over time is essential. Seen from the position of the postdoctoral

researchers, these methods of work are both stimulating and challenging. Postdoctoral researcher C puts it this way:

I can't throw myself into those joint experiments in the same way, even though I find them interesting. But the whole time I've been going around, considering: "What's in it for me?" because I'm just in a temporary position.

Here emphasis is placed on how topics may, under certain conditions, function as common objects for researchers who initially didn't have strong common interests. The dilemmas and tensions between personal research and the collective projects, from the point of view of a Ph.D. student, are evident from Ph.D. student A's comment:

Sometimes I think we've noticed that the joint projects are given priority at the expense of individual projects, so we've had to raise that issue when we've all been together, because we get so excited, and then you come up with all these joint projects, but I can't be part of everything.

From the point of view of both postdoctoral researchers and fellow researchers, tensions related to the degree of joint focus are visible. The long-term agenda established by research leaders attempts to achieve a balance through the development of short-term projects headed by temporary employees. Even though there is a sharing of professional interests and the possibility of collaboration, this will not be sufficient if the tensions become too strong in relation to the objects steering the research. It is important to stress the fact that even though the researchers share their interests within one field of knowledge, the objects will be developed within the more limited and specified areas. This is what we refer to as the procedural part of the research work. This could cause trouble for the Ph.D. students if the research leaders and students don't share the same perspective on the concrete focus of the research.

The Research Leadership's Challenges

As indicated in the introduction, research leadership is offered as the solution to a series of problems identified at the policy level. In this section, we will take a closer look at the way our participants describe this. Research leader A expresses his ambitions for the community as follows:

To achieve good research together, and explore how productive one can be as a team. ... we wanted to do something that was integrated pretty

tightly, both because of the professional development and the working processes. Simply the way we work together.

In this research community, the two research leaders have different roles and functions. The one who has been the longest in the field, and has guided numerous Ph.D. students on their way to their doctorates, contributes through professional inspiration and the maintenance of the social environment. The latter involves the promotion of an experimental and playful attitude toward the ways one can cooperate, which gives the research community a distinguished openness and a diversity of voices. The other research leader is described as having a more organizational function, and his role is to create boundaries and a strict focus. The two research leaders are described as complementing each other. They give the project direction, both internally, within their own unit, and in the external community in which the project is positioned. Postdoctoral researcher C puts it like this: "It seems like they [the research leaders] are incredibly coordinated."

During the interviews, different goals and ambitions related to the research community became apparent. The primary ambition seemed to be to develop research at a high international level of recognition through a strong and inclusive work environment. Another stated ambition is related to the social dimension of being a researcher. Emphasis is placed on areas like job satisfaction, well-being, and positive social interaction. Here, the different areas merge, and there is no strict division between the work context and social life outside the workplace. Ph.D. student A expresses it like this: "getting away from the loneliness and getting away from the feeling of being on your own." In other words, a picture is drawn of a work and learning environment in which the Ph.D. students face high expectations when it comes to production, but in return they receive a highly valued professional and social experience.

Summary

The first research community seems active and innovative. A researcher works directly with the development of conventions and genres of research within his or her own field. This field of knowledge is open to different methods of publishing so that the structures can't be taken for granted. Here we find that strong ambitions and different collective working methods are used to develop the research and the research genres. Three types of tension can be identified. The first is related to time. Different participants are operating with different timelines, depending on their institutional affiliations. Here norms about individuality and autonomy become important issues.

This influences the opportunities to participate in collective research and writing activities. For example, the Ph.D. students have to prioritize finishing their own projects before they are able to move on. A second tension exists between symmetry and asymmetry. On a social level, all can be seen as equal, but professionally the research community appears to have a distinct leadership. This is made clear, and is seen as obvious, by the participants. This is a tension between the rhetoric of equality and how the research is in fact framed and focused. The third tension is related to the degree of division of labor in the construction of the object of research. What is the single researcher's object of his or her own research, and what constitutes the joint research? The way we interpret this is that the project, as a collective activity, can be described as a negotiation zone, where all the participants are given the opportunity to give voice to their research agendas. But given that one has joined a research community, the negotiations aren't completely open. For the Ph.D. students and the postdoctoral fellows, this means that they must also enter into a set of joint activities, working with crosscutting problem areas within the projects, even if their own projects suffer as a result.

Description of Research Community 2

The computer science research community is part of a research center. The unit where we carried out the interviews is a department within this center. The community started as a small group in 1999, and since then has gradually grown to its current size. In the department there are research leaders, four senior researchers, three postdoctoral researchers, six Ph.D. students, and several master's students.

Organization and Gradual Development

The project has made its mark internationally and chooses new paths in relation to research organizing and types of projects. The department is divided into three areas.

The research leaders stress that a joint focus is central to the community's ability to produce good research results, and they support the department's division into three fields. According to research leader A:

We've had a few strategy discussions where we say that we will focus on certain areas, three subareas ... , and then you have to stick with those areas. ... The philosophy is that if you want to become internationally

good, we all have to pull in the same direction, and you got to keep your focus.

The focus of this research community grew out of negotiations early in the process of the development, with a strong steer from the leadership. The object established by the leadership is not an object of research for general discussion. The aims and ambitions were articulated by research leader A through a consideration of three aspects:

One has to work concentrated, several people in the same field over a period of time, if one wants to reach far out, internationally. So of course, focus is important in all parts of it, and then you have the thing about being stimulated, meaning getting people to perform, you've got to have fun, you've got to look at the things that unite hobbies and work, and of course resources, meaning that you shouldn't spend too much time on things interrupting the research, and things you can make other people do, other people should do.

The following seem to be important from the perspective of the research leader: focus, quality, support, and resources. These aspects point toward a strong degree of cohesion and continuity within the research work, and this is also mirrored in the subareas. Much emphasis is also placed on larger projects crosscutting smaller research groups. A reasonable interpretation is that this community places a strong emphasis on cohesion and continuity when it comes to the objects that drive its research. The negotiation of these objects takes place at the leadership level, with close reference to the development of the project itself.

The Challenges of the Research Leadership

As indicated in the introduction, this research group is described as hierarchical, with a clearly defined leadership and organizational structure. Taking a closer look at this structure, we will see how the participants describe the research leadership and their position in the group. One significant action is the arrangement of a three- to four-day internal seminar for the department twice a year. According to research leader B, "It's one hundred percent compulsory, and then we've got intense discussions and a tight schedule, nearly twenty-four hours a day for three to four days." These seminars are highly appreciated by the Ph.D. students and the postdoctoral researchers. Several of the informants mention the seminars as an important contribution to the social unity within the community.

High levels of pressure at work and clear organizational structures make the standards and the division of labor within the work environment clear. We can identify tensions between the different members of the group, in relation to the established standards and aims. One tension is between the Ph.D. students' need for cooperation and the research leaders' ambition to create tracks for the development of independence of the Ph.D. students and the postdoctoral researchers. This tension has made the Ph.D. students come together to form their own groups, in which they have provided each other with supervision based on their own experiences. When it comes to being included in different working arrangements and meetings, those who wish to participate need to take some sort of initiative. As one postdoctoral researcher said, "If you ask about it, he'll pass it on, but you've got to ask. If you're not being active yourself, you can easily end up just sitting there." It must be stressed that within the group, the different Ph.D. students have different perspectives – some value protection and quiet working environments, whereas others want more sparring with their seniors. Time is referred to and experienced as one of the most central tensions in this group. This is also related to the strong ambitions that exist.

In this group, much emphasis is placed on status, position, and ranking in the international research community. Activities are organized with regard to this, which means that one will experience tensions internally, within the group and the center (e.g., with regard to how much each individual contributes to strengthening the international position). For the Ph.D. students, this means that their contributions become part of this positioning. The support increases, but so does the pressure.

Summary

The second research community has a clear, institutional foundation in that it is part of a research center. This anchor provides clear directions for the work, and means that research is the main activity. Those working within this community have high ambitions, and the direction in which these ambitions are channeled is controlled primarily by the leadership. In this research community, different tensions are identified. First, the research community stands out as hierarchical, with a clear work division between researchers on different competence levels. There is little openness for researchers other than the senior researchers to negotiate the future agenda within the field of knowledge. From the Ph.D. students' perspective, this tension has implications for their integration into the community. This is strongly related to the fact that conventions and genres are established

with regard to products such as scientific articles. The results produced by this center are collective and institutionally based, which means that the collective result is superior to the work each individual researcher contributes. This is expressed most clearly when it comes to the Ph.D. students. We could say that there are very few differences between the research leaders' projects and the Ph.D. students' projects.

This aspect is related to the second tension, the shared objects for research. As we have indicated, this means that the Ph.D. students' work is followed closely whenever that work is contributing to the research leadership's agenda. The Ph.D. students' work is closely integrated into the collective knowledge development of the research group. The tension here could also be described as that between individual contributions and development and the collective outcome for the research group.

The last tension is related to time and is concerned with the practice of prioritizing the research leaders' own research, strategic work, international participation and branding, co-writing with other senior researchers, as well as guiding Ph.D. students. We can describe this as a strong asymmetry between professors and Ph.D. students.

DISCUSSION AND CONCLUSION

In our analysis of the research group, we have pointed out learning potentials and affordances that are seen as crucial to the way Ph.D. students and research recruits get involved in their communities. Research organization and research leadership are crucial in this context. We have attempted to emphasize some of these main factors seen from the perspective of the research leaders and the Ph.D. students. In the empirical analyses, it becomes obvious that different kinds of negotiation zones are established. We can conceptualize this as emerging objects that direct and redirect the work and the meaning-making for the researchers (Engeström, 2004; Saari, 2003). Negotiation in this context is a process whereby one discusses and debates in order to achieve a common understanding. This involves structural aspects like standards, genres, and conventions and the micro-processes that constitute these activities.

In media and communication research, the most important thing seems to be the negotiations concerning the constitution of the object. The constitution of the object is not given and is gradually changed throughout a Ph.D. student's development. This is what Engeström (1987) and Saari (2003) describe as an emerging object, which means that the object gradually changes over time, redirecting the activities. The negotiation zone can

be described as open, given that participants adhere to the set of thematic frameworks that this research group is based on, and the individual Ph.D. student will have many choices. Individuality and autonomy are strong norms in this group. These norms have a strong basis in many universities as knowledge institutions (Olsen & Maassen, 2007). If you choose to position yourself close to the joint focus, it means that the support from the research community increases. If you choose to position yourself at the periphery of the research group activities, there will necessarily be fewer overlapping interests, and direct support will be reduced. In the humanities field, constructing the object of research is part of the creative aspect of research activities. When the research group moves toward more collective models, contradictions can emerge.

In the computer science community, the Ph.D. students' learning activities are characterized by a relatively limited zone for negotiation. Here the objects also change, but the change process is not open to all the participants in the community. The main emphasis is placed on an overlapping of the research leaders' and Ph.D. students' focus. This means that the Ph.D. students increase their opportunities for support, and at the same time the pressure with regard to the production of a collective agenda increases. One possible contradiction here is between the creative aspects of research training and the collective outcomes. In this group, it is difficult for the Ph.D. students to be remote participants. The degree of overlap with the research leaders must be significant enough to create strong common areas of focus.

For the Ph.D. students, being included in different types of research groups necessarily gives rise to different experiences. This chapter gives us the opportunity to discuss how open versus closed the research focus can – or should – be. We have looked at concepts like conventions and genre to clarify what is given, and how and why negotiation is played out, and we have also examined the structural level of the research activities. In addition, we have described the process dimensions of the object, where one makes decisions on a microlevel within the research. This negotiation is aimed at making explicit which conventions and genres are valid. In the humanities communities, we see much more openness in both the structure and the process dimensions than in the computer science community. At the same time it is important to emphasize that on a general level the research leaders' work is similar; that is, their challenge is to offer direction, stimulate creative research contributions, and ensure that the Ph.D. students can manage the basic conventions and genres within their field of knowledge. They must also create conditions that can provide easy access to

the forefront of research and determine how to develop contributions that are highly relevant to the accumulated knowledge within the respective field.

These findings seem important for a policy-related discussion when we use concepts like centers of excellence. When we describe the research leadership challenges on a more general level, they could be seen as the same, but at the microlevel the challenges are described differently. Here the traditions, rules, norms, organization of the research community, and their institutional context play a major role. It is at this level where the research activities are actually realized. Without detailed analysis of the everyday activities of the research work, we will have limited insight into how we can create more collective models in communities where individuality and autonomy stand as the most central norms.

We stated that object as an analytic concept is our key concept in this chapter. The reason for this choice is that in the field of learning theory and also in neighboring approaches to activity theory like actor network theory and microsociology (e.g., ethno-methodology), a strong concept that combines the material world and people's meaning-making is missing (Engeström, 1999b; Engeström & Middleton, 1996). We see this concept as a major contribution from activity theory and Engeström's work. In this chapter, we have used it at the empirical level to discern how different research groups and communities define and work with their object of research. Because the concept of object is often viewed as rather abstract when we come to empirical studies, we have used what we call *intermediate* concepts that come from the empirical data or from related studies. That is why we have found it productive to connect notions like standards, conventions, and genre to how the object was constituted and developed in the two research communities. The object as a concept becomes more securely anchored in the data that provide the empirical premise for the analysis. Notions like change and expansive learning are at the core of activity theory (Engeström, 1987, 2004). In this analysis, incremental change becomes transparent through the zones for negotiations. These processes do not capture expansive cycles, but provide us with an analysis of how boundaries get created and maintained over time. The duality of objects of research is central for the direction of the incremental processes that research leaders and their colleagues work with in their everyday activities.

Our purpose in this chapter has been to describe and in an analytical way point out resemblances and differences between two different research communities. If the focus becomes too open, the negotiations become time-consuming and unproductive compared with the collective agenda.

On the other hand, if the research focus is too closed, and the negotiations are not sufficiently transparent and substantiated, it reduces the Ph.D. students' opportunities to become participants and contributors to the collective agenda. Such tensions, dilemmas, and contradictions are part of most types of research communities and groups, but with new mechanisms like centers of excellence and collective research agendas, the contradictions will increase.

PART FIVE

INTERVENTIONS

Who Is Acting in an Activity System?

RITVA ENGSTRÖM

How is it, are we the material or are we the producer of the outcomes or observations ... although I understand that it is difficult in a way, because it is as if emerging from discussions, but in what place can such observations be made that now the idea emerged and now we share the same opinion?

(Excerpt from a Change Laboratory session, Spring 2006,
in the project "Crossing Boundaries for
Helping Families at Social Risk")

Having an educational background in Marxian sociology, I have been inspired and affected by the research methodology proposed by Yrjö Engeström for the dialectical study of links between the individual and the society. Drawing on the cultural-historical school of psychology, he has argued for a "radically new methodology" that incorporates historicity and developmental judgment into analyses that might "yet take fully into account the diversity and multiplicity inherent in human activities" (Engeström, 1999a, p. 28). This methodology became identified with a collective learning activity from the very beginning. By introducing the methodology of developmental work research with his colleagues, Engeström broke new ground in the theory of his own disciplinary field of adult education. The aim of developmental work research was to enable workers to become conscious subjects of their own learning activity and to combine independent learning activity with work.

The foundations of the methodology are presented in the book *Learning by Expanding* (Engeström, 1987) in such a rich way that this text continues to carry forward certain, partly unfulfilled ideas related to how to study individual learning and societal change from the point of view of human development. In this book, the author expands on Vygotsky's idea of the

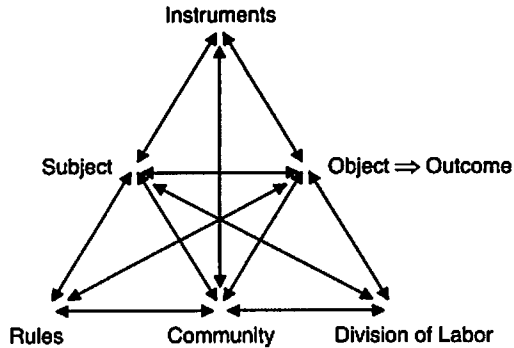


Figure 16.1. The structure of human activity (Engeström, 1987, p. 78).

zone of proximal development as the basic category of developmental work research. Behind the elaborated idea, there are two paths of theorizing. The first one is the model of an activity system. The second path uses the model in the analysis of the cultural evolution of learning. As should be obvious, the paths are intertwined and support each other in the theorizing process.

The model of the activity system developed by Engeström depicts the constituents of societal activity within a triangular structure of activity (Fig. 16.1). The model is suggested for grasping the systemic whole, not just separate connections, in order to analyze a multiplicity of relations (Engeström, 1987, p. 78). Furthermore, Engeström argues that the model is actually the smallest and simplest unit that still preserves the essential unity and integral quality of any human activity (p. 81). It therefore facilitates analysis of the dynamic relations and historical change of activity – for the understanding of developmental transformations.

In delineating the evolution of learning, Engeström utilizes Gregory Bateson's (1972) theory of a complex hierarchy of the processes of learning. In his reading of Bateson, "Learning I" indicates the object, which presents itself as mere immediate resistance, not consciously separated from the subject and instrument by the learner. In "Learning II," the object is conceived of as a problem, demanding specific efforts. The subject is no longer a nonconscious agent but an individual under self-assessment. In Learning III, the object is seen as a system containing the subject within it. Engeström (1987, p. 151) cites Bateson:

Selfhood is a product or aggregate of Learning II. To the degree that a man achieves Learning III, and learns to perceive and act in terms of the

contexts of contexts, his “self” will take a sort of irrelevance. The concept of “self” will no longer function as a nodal argument in the punctuation of experience. (Bateson, 1972, p. 304)

The notion of Learning III made possible the questioning of existing learning theories and offered for Engeström the basis of expansive learning theory. In this theory, the individual self is replaced – or rather qualitatively altered – by a search for a collective subject, capable of mastering the complexity of “contexts of contexts,” that is, of societal practices with a highly developed division of labor as well as multilevel technological and symbolic mediations (Engeström, 1987, p. 152). On the basis of the historical framing of learning activity, Engeström distinguishes among three types of development: the individual-explosive, the invisible-gradual, and the collective-expansive. He sees the third type as the one that requires conscious mastery – *the subjectification of the subject*. Although development can take place only as a “result” of learning, in Learning III development itself becomes the object of learning that is basically collective in nature (p. 158). Looking for the future of human activity, Engeström provides a view that activities are becoming increasingly societal. According to him, this is manifested in three different ways. First, different activity systems become gradually larger, more voluminous, and denser in their internal communication with a growing number of people. Second, different activity systems, and people within them, become increasingly interdependent, forming ever more complex networks and hierarchies of interaction. Third, this interdependence of activity systems is increasingly penetrated and saturated by the basic socioeconomic laws and by corresponding contradictions of the given society (p. 157).

From today’s perspective, this theorizing of learning activity is coherent and convincing. However, there is an embedded dimension, continuously present, but left open or left to rely on the foundations of the school of cultural-historical psychology. This dimension concerns the question: Who is the collective subject, or “what kind of a subject is required and produced by learning activity?” (Engeström, 1987, p. 127). Engeström found the levels of human functioning introduced by A. N. Leont’ev (1978) relevant to his concept of a collective activity system. Operations bear certain typified features of actions in response to ongoing conditions of activity. Actions are artifactually mediated and carried out by individuals. They involve cultural interpretation. Activity is “an irreducible molar unit, an object-driven complex of goal-oriented actions” (Leont’ev, 1978, p. 61). On the basis of these levels, he views development “as the transitions between the levels of learning as movement from operations to actions to activity”

(Engeström, 1987, p. 163). He also applies the idea of the learning activity as a triadic process. According to him, "Each corner of the triangle would thus have three qualitatively different levels: that of the overall activity, that of actions, and that of operations." Instead of attempting "such a complex graphic presentation," he prefers to summarize the various characterizations of those three levels in a table entitled "The Proposed Hierarchical Structure of Activity" (pp. 153–154). In this table, the three levels of the subject are "non-conscious" (operation), "individual subject" (action), and "collective subject" (activity) (p. 154).

The aim of the present chapter is to examine subjectivity within the methodology of developmental work research. One reason for such an examination is the diversity of readings and interpretations of Engeström's unit of analysis. Another reason is that a future vision of activities seems to indicate movement toward increased subjectivity. I am also inspired by recent comments from followers of Holzkamp's (1995) "subject science of learning." For example, it has been asked whether or not the activity system itself has taken the place of the subject that realizes and reproduces itself by generating actions and operations. Or, put the other way around, it has been asked if the activity system is misattributed as "collective" regarding the expansive learning process (Langemeyer, 2006; Langemeyer & Roth, 2006).

On the basis of my own experiences from several developmental work research projects and on my long-term interest in processes of signification (R. Engeström, 1995, 1999), I consider theoretically promising the suggestion presented by Anna Stetsenko (2005). She points out that the dichotomy of individual and collective planes of activity is still insufficiently resolved in the research tradition of cultural-historical activity theory. She takes up for discussion the one-sided dependence of human subjectivity "on the processes of material production (especially in A. N. Leont'ev's works) and on associated societal forms of exchange between people (especially in Vygotsky's works)" (Stetsenko, 2005, p. 74). She calls for more attention to the subjective mechanisms allowing for individual participation in collective processes. For her, the three processes at the very foundation of human life and development are (1) the material production of tools, (2) the social exchanges among people, and (3) the individual mechanisms regulating this production and these exchanges.

All three processes need to be viewed as a unified system of interactions and truly dialectically connected, that is, as dependent on and – at the same time – conditioning and influencing each other. According to Stetsenko (2005, p. 85), human subjectivity can be conceptualized on this designated