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'Boundary Encounters' as a Place for Learning and Development at Work

Summary:
Care for patients with multiple illnesses is often provided by several professionals from different parts of the health care system. In these cases, there seem to arise new demands for the communication and the cooperation between different professionals in the primary and the specialized care. In this paper, I shall describe how these challenges are met in an encounter which is a part of interventions called "Implementation Laboratories". In these encounters, a new tool (care agreement) and a new practice (care negotiation) are introduced and elaborated in internal-medicine patient care. I conceptualized the Implementation Laboratories as "border zones" where the learning processes between different communities are intensified. Learning in the Implementation Laboratories resembles learning at the Boundary Crossing Laboratory described by Engeström, Engeström & Vähäaho (1999a; 1999b). It is interwoven into the process of analyzing problems, planning and testing of solutions in order to improve the medical patient care. Learning appears as collisions between the different perspectives of the patient and professionals of different organizations, and may sometimes lead to reconstruction of boundaries.

1 Introduction

A boundary divides or separates. It is a place of division between what is familiar, and what is unknown. A boundary is also a place for connecting: being simultaneously part of both sides. Encounters at the boundary can lead to useful re-constructions of those boundaries offering a purposeful ground for learning and development.

In studies focusing on the networks in business, organizational boundaries are often understood as a source for sense making and identity constitution, allowing for the attribution of reputation, and protecting systems against the uncontrolled discharge of knowledge. Instead of being represented as stable constructions, boundaries are described as precarious and permeable in nature. Due to various exchange relationships in organizations, optimal boundaries have to be constantly created and readjusted. Readjusting boundaries turn out be a process offering potentiality for growth and development. By taking advantage of links consisting of different sorts of association between organizations or human-mediated ties, organizations are able to gain more resources and increase their profitability. (Pennings & Kyungmook 1999, pp. 43-44, 47-51.)

In public organizations such as hospitals and health care centers, boundaries seem to be stable and traditional. They have evolved during long periods of time along with the

development of the medical care system. Boundaries indicate the system for distribution of medical care services and division of labor between medical care providers. Medical care in the Capital area of Helsinki is an example of such bounded organizations. The system of medical care seems to work well, when there is only one health problem to be treated in a patient's medical care. When a patient is suffering from chronic or multiple illnesses, however, the bounded system creates problems and disruptions in the care (Engeström, Engeström & Vähäaho 1999a, pp. 349-350; 370-372).

The Helsinki medical care services offer an example of the need for new ways of learning at work calling for new types of individual and collective learning across the boundaries and at the boundaries. According to Suchman (1994, p. 25) "crossing boundaries involves encountering difference, entering into territory in which we are unfamiliar and, to some significant extent therefore, unqualified".

Engeström, Engeström & Vähäaho (1999b) suggest that organizations should learn collectively to cross the traditional boundaries. They describe a developmental process of solving problems in children's medical care collectively by applying a new learning method called "The Boundary Crossing Laboratory", which represents an application of "Change Laboratory" (Engeström & al. 1996; Virkkunen & al. 1999). The process was introduced into the network of children's medical care in the Capital area of Helsinki. The learning challenges encountered in the project concerned mainly the problems of cooperation between primary and specialized medical care. There were no solutions already available for the encountered problems; they had to be collectively worked out. The new tools and practices were developed in the "process of solving" a problem. This meant that learning and re-creation, learning and development were joined together in a collective activity (Engeström, Engeström & Vähäaho 1999b, pp. 41-43).

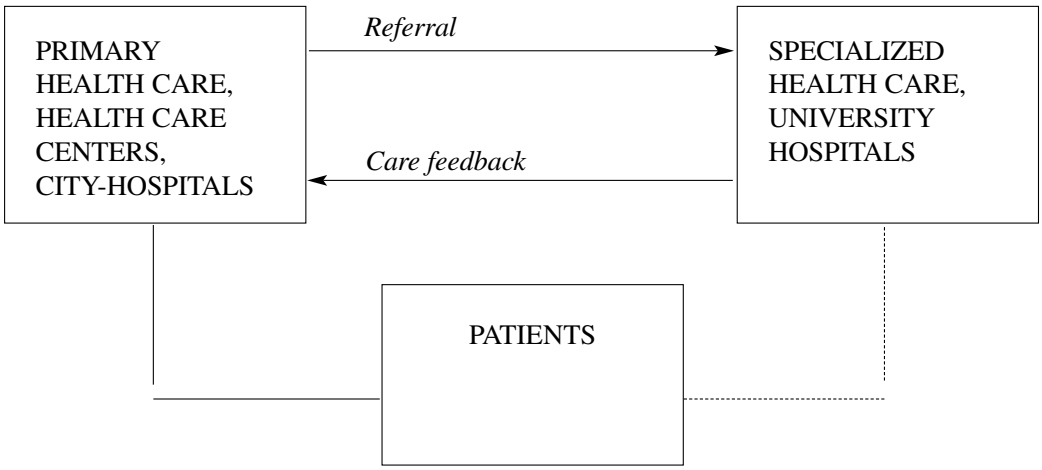
In this paper, I shall reflect upon the issues of learning in a new project, where the solutions developed in the project of improving children's medical care, a new tool (care agreement) and a new work practice (care negotiation) were introduced in internal-medicine patient's care as a series of "Implementation Laboratories" arranged between the patients and professionals of primary and specialized care. I have chosen one "Implementation Laboratory" session as an example of one encounter. The ten patients selected by the professionals to participate in this project represent five different types of illnesses in internal medicine. There is one encounter to be carried out for each patient, out of which, four sessions have already been arranged. The Implementation Laboratory is a new application of the Change Laboratory method (Virkkunen & al. 1999) developed and followed in the project on internal-medicine patient care in the Capital area of Helsinki. The two-year project is being carried out by a research group from the Center for Activity Theory and Developmental Work Research at the University of Helsinki.[1]

The primary medical care for the population of Helsinki is organized into seven health centers, which are further divided into health stations. Every patient in Helsinki has a personal doctor (GP) and a nurse giving consultations at the health centers. They provide medical care for ordinary diseases and health troubles needed by most of the people. The specialized medical care is practiced in the city owned hospitals, short of primary level hospitals, and at the university

1 Researchers in the project are Yrjö Engeström, Ritva Engeström, Tarja Vähäaho and the writer of this paper.

hospitals in Helsinki owned by HDHUC (the Hospital District of Helsinki and Uusimaa County). The university hospitals serve the population living in the whole County of Helsinki and Uusimaa, when there is a need for medical treatment of specialized experts. In addition, there are some organizations such as laboratories, which serve both the health and hospital care units owned by the City and the County. Communication and cooperation between organizations is secured through referrals and care feedback. When a patient needs to see a doctor he or she goes to visit a personal doctor. In acute cases, such as heart attacks, a patient can go straight to specialized medical care. The organizational system of primary and specialized care is illustrated in figure 1.[2] The patients, whose medical care is studied and improved in the Implementation Laboratories are treated in all, or at least most parts, of the system of medical care. Participants in the Laboratories represent all parts of the system.

Figure 1. Organizational system of primary and specialized care



It seems to me that "Change Laboratories" are like "borderlands" between different cultures, which leads me to regard them as special areas of learning. The late cultural semiotician Yuri Lotman (1990, p. 136) has named the boundaries to be *"the hottest points for the meaning creation (semioticizing) processes"*. In addition, boundaries are places where *"the semiotic processes are intensified"* due to *"the constant invasions from the outside"* (ibid., p. 141). The research question addressed here is: What kind of places are the Implementation Laboratories for learning as a boundary encounter?

2 For the origin of the figure 1, see Engeström, Engeström & Vähäaho 1999a, p. 361.

2 Capturing the Nature of Boundaries through Metaphors

I start by capturing the nature of boundaries through metaphors as an exploratory device, because metaphors as everyday constructions seem to carry potential for understanding ambiguous phenomenon like a boundary. First, I shall present two metaphors of boundaries, and, then, proceed to developing a conceptualization to act as a unit of analysis in this paper.

The most common way to conceptualize physical boundaries in every day life refers to *boundaries as edge conditions*, borders or barriers suggesting that boundaries are stable constructions differentiating space, giving access to space and activities in space. According to Fitzpatrick (2001), who reflects on work-practice boundary metaphors in electronic communication, boundaries understood as an "edge-condition" serve as useful descriptions of physical and virtual boundaries to some extent, but are somewhat poor in the description of social worlds. In order to capture these for a study of socially situated work practices, Fitzpatrick suggests a complementary metaphor of *boundaries as peripheries*. This depiction conceptualizes boundaries as "center and periphery relationships", where the boundary effects appear as "proximity relationships given by peripheries to a center". The notion of a center describes a shared object or purpose of the social activity under study while a periphery refers to variations in commitment to a shared object.

Lotman draws attention to the renewing nature of boundaries. He says that **"***one of the primary mechanisms of semiotic individuation is the boundary, and the boundary can be defined as the outer limit of a first-person form. This space is 'ours', 'my own', it is 'cultured', 'safe', 'harmoniously organized', and so on. By contrast 'their space' is 'other', 'hostile', 'dangerous', 'chaotic'"* (Lotman, 1990, p. 131). The boundary manifests itself as ambivalent in nature given its capabilities of separation and unison. It is "bilingual" and "polylingual" with a translation mechanism for translating the "outer forms of culture" into "inner ones". The semiotic model of a boundary turns out to be quite complex, with the functions of controlling, filtering and adapting the external into the internal.

Boundaries present intriguing possibilities for change realized in intensified semiotic processes of encounter between the familiar and unfamiliar. Lotman sees the boundary as the outer limit of a "semiosphere" which includes all constantly renewing forms of a culture with a cultural "I" understood as a center and a cultural "you" understood as a periphery. A "semiosphere" is depicted to be "heterogeneous" with various "languages" relating to each other by some of them being mutually translated, and some of them not. When defining heterogeneity further, Lotman points to a diversity of elements and their different functions. Because the structure of a "semiosphere" is unstable and asymmetrical, a "semiosphere" needs an ability of self-description in order to maintain its unity. This is gained by the nuclear capability of a center for creating its own grammar in a process of self-description, and then extending the norms created over the whole "semiosphere". (Ibid., p. 127-129.)

Lotman's concept of boundary is very close to boundaries described as "center and periphery relationships", but with the emphasis on boundary functions. As a space or a quality, the relationship between boundaries and peripheries remains unclear. Wenger (1998, pp. 199-121) emphasizes the different aspects of boundaries and peripheries shedding light on this ambiguous phenomenon. Boundaries represent discontinuities – lines of distinctions – between communities, whereas peripheries represent con-

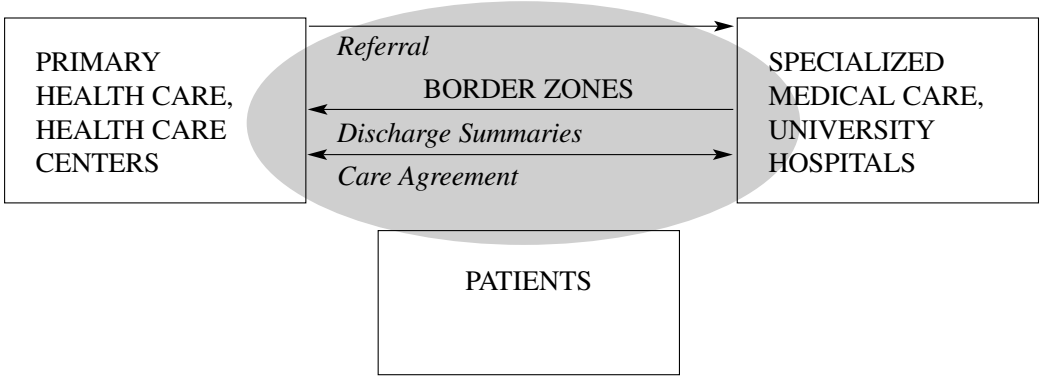
tinuities – areas of overlaps and connections – between them. In practice, boundaries and peripheries are interwoven.

So, what kind of tools do metaphors give for analyses of learning at the boundaries? According to Fitzpatrick's (2001) analyses of boundary effects in electronic communication design, understanding boundaries "as centers and peripheries" puts people and practice in the focus, making the richness and variety of socially-situated boundaries more explicit and leading to an understanding of learning as closely related to improved practices. Lotman's concept of boundary emphasizes the boundary effects in very complex forms, and helps focus our attention on the potential of boundary-less areas. Learning appears as translating or transforming. For Wenger (2000, p. 233) boundaries "offer learning opportunities in their own right". Learning at the boundaries differs from learning at the centre of communities. *" Inside a community, learning takes place because competence and experience need to converge for a community to exist. At the boundaries, competence and experience tend to diverge"*. In order to enable learning, some intersection of interest is needed with open engagement with real differences as well as a common ground. There is also a need for commitment to suspend judgment in order to see the competence of a community, as well as ways to translate between repertoires so that experience and competence actually intersect (Ibid.).

In order to arrive at a unit of analysis for this study of encounters in the Implementation Laboratories, I suggest that learning at the boundaries should be studied as a "border zone". Such study would focus on the renewal and reconstruction of boundaries that comes about in encounters at the boundaries. The organizational system for primary and specialized care (Figure 1) is completed with the boundary appearing as an area of change, a "border zone", between patients and primary and specialized care (Figure 2). The gray area should be thought of as consisting of multiple relationships in motion.

Wenger (1998, pp. 95-96) characterizes learning as closely interwoven into practice. People taking part in the practices do not specifically feel they are learning when they are engaged in improving or changing the practice. Thus, learning and change are also closely interwoven. Relationships between learning and practice and learning and change are understood in a similar way in this study. What change it requires is captured in the next section.

Figure 2. Border zones in the cooperation between primary and specialized medical patient care as a unit of analysis.



3 A Theoretical Approach for the Identification of Organizational Learning at the Boundaries

Cultural Historical Activity Theory defines practice as "activity", which is culturally and historically mediated and collective in nature. The mediated nature of activity is based on Vygotsky's (1978) definition of object-oriented action mediated by signs and tools. While Vygotsky's unit for analysis was the object-oriented action mediated by signs and tools, Leont'ev extended the unit of analysis to include the collective activity under study. Leont'ev (1978) emphasized the importance of object-orientedness and the division of labor in human activity; offering the threefold structure of the activity: (1) collective, object-oriented activity directed by motives, (2) actions directed by goals, and (3) operations directed by the conditions and tools at hand (Leont'ev 1978, p. 62-67.)

Engeström (1987) conceptualizes the general structure of human activity as consisting of subject, object, mediating artifacts (sign and tool), community, rules and division of labor. With this model, it is possible to study individual actions in a community. Since actions are mediated through division of labor in a community, they are at the same time both part of activity whilst also renewing it. Organizations in medical care create a network of communities. Activity systems or communities can be differentiated from each other by their objects, but they can also share an object such as the treatment of a certain illness. They can be connected to each other in many ways: through division of labor (who treats what), rules (rules of communication, division of labor), tools (laboratory tests). Rules and their construction appear as one of the dominant boundary characteristics along with object-construction and division of labor.

The different parts of the system evolve in different time cycles causing tensions or "inner contradictions" as a source of dynamics and development in human activity (Ibid., p.89). Inner contradictions can be primary ones, such that are usually latent, not leading to open crisis. Or they can be expressed as secondary contradictions appearing between the different elements of the activity system model**,** many times evolving into a crisis. These crises may become critical and lead to transformation of the system. Tertiary contradictions appear between the object/motive of a dominant culture and the object/motive of more advanced culture. Changes do not happen suddenly. Old ways of action prevail, while the new ones are evolving causing contradictions between old and new ways of practice. Quaternary contradictions appear between the central activity (activity in which the central activity is embedded) and its neighboring activities, which can be instrument-, subject- and rule-producing, activities. (Ibid., p. 87-91.)

What Cultural Historical Activity Theory teaches us is that disruptions can be taken as appearances of system-related inner contradictions. Inner contradictions can be observed as deviations from the normal way of practice. They can appear as disturbances or disruptions in actions. Also dilemmas and their innovative solutions are often expressions of inner contradictions. (Engeström 1995, pp. 62-67.) Contradictions have an essential meaning in mobilizing change and expansive learning, which is a multiphased process leading to a change of an activity system itself or the work community (ibid.). Whereas Wenger (2000, p. 233) points at the tension between experience and competence as a maximizing source for learning at the boundaries, Cultural Historical Activity

Theory and Developmental Work Research directs attention to historically and culturally evolved contradictions appearing between different activity systems. In the encounters between members from different activity systems, the tensions can be observed as collisions of different perspectives and argumentation.

The Change Laboratory developed at the Center for Activity Theory and Developmental Work Research is based on the ideas of expansive learning taking place at the working site (Engeström & al. 1996; Virkkunen & al. 1999). The basic method applied at the Laboratories follows the method of dual stimulation derived from Vygotsky (Engeström & al. 1996, pp. 13-14). This involves the presentation of data about problems and disturbances at work called the "mirror". The on-going project of implementing the care agreement and the care negotiation in internal-medicine patient care is carried out in two phases. In the first phase two cases from each patient group are handled. A patient and the professionals mainly dealing with a patient in his medical care are interviewed. Doctor's appointments are videotaped, if possible, and the patient's care-histories are traced from documents. After that, the patient-case data gathered is applied in arranged meetings, where the patient and the participants in his or her care are invited to discuss over problems and solutions in the patient's care. Thus, the data presented as a mirror has a potential to act as a catalyst for the improvement of the medical practices between separate providers. After the meeting the solutions created are followed along with the patient's care during one year. The method is similar to the one applied in the Boundary Crossing Laboratory (Engeström, Engeström & Vähäaho 1999a, 1999b).

4 Learning at the Implementation Laboratory Encounter

4.1 Tommi's case as an example of a patient case handled at the Implementation Laboratory

Tommi is a 63-year-old pensioner, who suffers from diabetes, heart troubles, heartburn (cough), kidney insufficiency and breathing difficulties (dyspnoea cardiaca). His diabetes was diagnosed about fourteen years ago, and he has been on medication since then. His heart troubles appeared in 1989 leading to bypass surgery, the first of which was performed in 1990, and the second one in 1998. During this time he had experienced several minor cardiac infarcts and one ventricular fibrillation during his stay at the hospital. Over the past two years, he has been suffering from cardiac insufficiency causing difficulties in breathing. The data applied as an example in this paper is from an encounter arranged by the research group in order to improve Tommi's medical care.

In the past two years, Tommi has been treated for his diabetes in the city-owned hospital (Consultation Clinic 2 specialized in internal medicine), where he sees a specialist of internal medicine twice a year. The doctor has made a referral to eye-testing once a year needed in the care of diabetes. Then Tommi has visited the cardiac outpatient clinic and the hospital wards for specialized care (the university hospital) because of his heart and lung troubles. The cardiologists have consulted lung and kidney specialists. With ordinary illnesses such as flu, Tommi is supposed to see his personal GP at the community health center. Because he has not had any acute illnesses over the two years, the only medical treatment provided at the health center, are the laboratory tests and the doctor's supervision over the "Marevan"

medicine, which is applied for dilution of blood in heart diseases. Marevan has to be checked up quite often, because many things, such as changes in type of medication affect the dosage of medication. The personal doctor relationship has only recently been established, because Tommi moved into the region at the end of last year. Tommi is supposed to change the treatment of diabetes to another city owned hospital (Consultation Clinic 1) near his new home, but this has not been realized yet.

The border zone in Tommi's case emerges between the personal doctor and the personal nurse at the primary level, the specialized doctor at the primary level hospital, and at the departments of cardiology, lung-diseases and nefrology of the specialized hospital care. The border zone was depicted in the Implementation Laboratory as a map which is presented in Figure 3.

MAP OF PATIENT'S CARE STATIONS 1999-2000

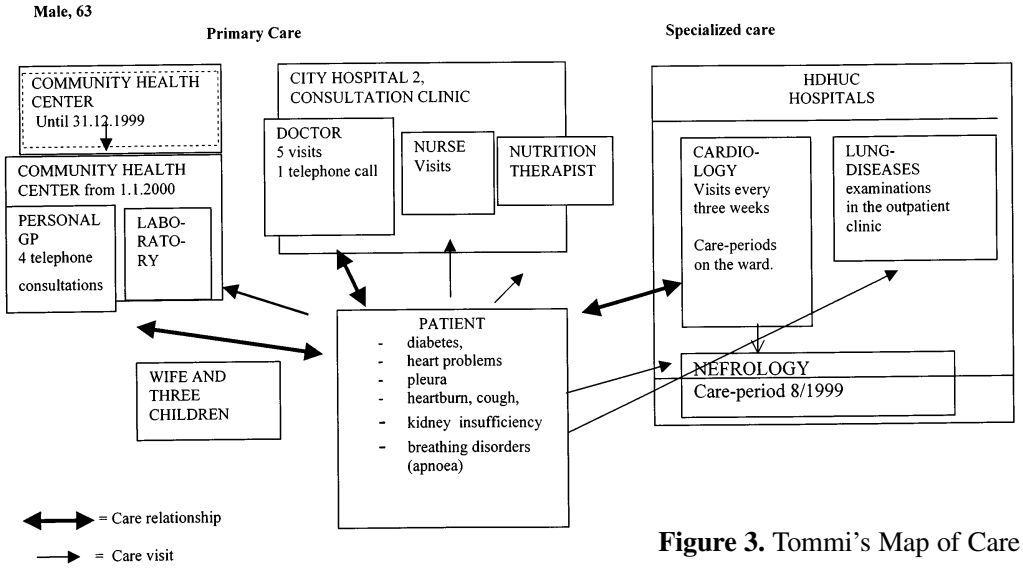


Figure 3. Tommi's Map of Care

The Implementation Laboratory encounter was arranged in order to work out the problems and disruptions in Tommi's care. It was videotaped with two video cameras and taped with a mini-disk tape-recorder. The research group had made a fifteen-minute videotape of interviews and doctors' appointments concerning Tommi's medical care. The videotape was structured so that the first part of it dealt with different interpretations of Tommi's medical problem, the second part handled the problems in the flow of information between different care providers, and the third the care responsibility in Tommi's medical care. The Laboratory session followed the same structure. The participants at the meeting were the patient, chief physicians of the community health center, and physicians and nurses in charge of the patient's medical care at the health center and in the local hospital (Consultation Clinic 1), which was to take over the future medical

care of Tommi's diabetes. In addition, there was one doctor from the cardiology department of the university hospital. The person responsible for Tommi's current diabetes care was not present, but his perspectives on the issues that were handled at the encounter were provided in the videotape.

4.2 An Encounter in the Series of Implementation Laboratories as a Place to Learn

As a learning challenge the Implementation Laboratory in the on-going project of improving the internal-medicine patients' care has many similar elements to the Boundary Crossing Laboratory arranged for the improvement of children's medical care (Engeström, Engeström & Vähäaho 1999a; 1999b). In order to describe the quality of learning at the Implementation Laboratory, I shall compare the characteristics of learning to be observed in one encounter of the Implementation Laboratory to the qualities of learning observed at the Boundary Crossing Laboratory.

The learning challenges identified in the Boundary Crossing Laboratory were lack of coordination and communication among the different care providers in children's medical care. This meant an excessive number of visits, unclear loci of responsibility, and failure to inform other involved care providers (Engeström, Engeström & Vähäaho 1999a, p. 357). The challenges for medical care brought up in the Implementation Laboratory encounter dealing with troubles in Tommi's case were similar, though with a different emphasis. After an analysis of Tommi's medical care during the previous two years it was evident that it had recently been carried out mainly by the cardiologist at the university hospital. The personal GP at the health center also had some responsibilities (follow-ups in Marevan medication), as did the specialist in the city owned hospital (Consultation Clinic 2) who took care of the diabetes. The first of the two greatest disruptions in Tommi's medical care, concerned the flow of information. The health center did not get information from the university hospital, or the Consultation Clinic 2 in order to prescribe the dosage of Marevan medication. The consultation clinic and the university hospital had had no connections previously, nor had the Consultation Clinics 1 and 2. Tommi himself acted as a postman when visiting his doctors. The second difficulty was connected to the responsibility of medical care. No one seemed to have an overall responsibility of Tommi's medical care. Tommi himself stated that someone should have such responsibility, as the following excerpt from Tommi's interview (which was also presented as "mirror" data) shows.

Interviewer: "Now, it occurs to me, given there are so many care providers, to ask you who has the main responsibility for care in your situation? Who has the main responsibility?"

Patient: "I can't tell you that."

Interviewer: "What is your opinion? Does it work well for you this way, that there are, in a way, different providers giving care to you, or would it make more sense, if there was a particular one, who would …"

Patient: "Someone should really have the main responsibility" [3]

The process of learning at the Boundary Crossing Laboratory followed the basic ideas previously designed and presented in the connection of the Change Laboratory (Engeström & al. 1996; Virkkunen & al. 1999). What was special in the case of the

3 The excerpts of data have been translated from Finnish into English reflecting the original meaning as truthfully as possible.

Boundary Crossing Laboratory was to invite the children's parents, the medical care providers from different organizations together, and the management, into a shared space, the Laboratory, in order to learn together from the patients' cases as analysed by the researchers. This crossing of boundaries between parents and members from separate communities led to collisions between different perspectives. The meeting of the various perspectives triggered a learning process consisting of different phases of learning actions, argumentation and questioning, finally resulting in the expansion of the object of work in children's medical care. Traditionally, the objectives of care have been conceptualised according to the diagnosed illness (e.g. diabetes or asthma) but in this learning process it evolved into being the overall medical care of a child suffering from many illnesses. To help with the achievement of this new objective, new tools, the care agreement and the care negotiation, were introduced and critically tested (Engeström & al. 1999b).

Differing views about Tommi's care could be observed from the outset in the different ways the patient and professionals named or put an emphasis on the main problem in Tommi's care. Tommi himself named "oxygen deficiency" during night time to be the biggest problem. The personal GP listed: "Diabetes and kidney-disease, coronary-disease and heart insufficiency, high cholesterols, Marevan medication for unknown reason ["unknown" to her because of lack of information]". The special doctor from the Consultation Clinic 2 named "diabetes", but also a "heart problem". The cardiologist gave "cardiac insufficiency" as the main problem, whereas the lung-specialist said that "there has been suspects of sleeping apnoea". Typically, the patient named the most troublesome illness or symptom, which was not necessarily medically the most serious one, and most of the professionals named the illness they were treating themselves as the main disease. The GP also listed all the illnesses, though she did not have enough information of them at hand.

Problems in communication were dealt with during the second part of the encounter. There were lots of disruptions in the communication between different care providers, and many different perspectives for the arrangement of it. As far as learning is concerned, the questioning and argumentation started at this phase of the negotiations. The specialist from the Consultation Clinic 1 made a first comment right after the video-presentation of the communication problems. She questioned the practice of not sending information to the GP after consultations at the university hospital and Consultation Clinic 2.

*Specialist: "Now we, at least, are trying to forward the documents to the health station after every visit, in cases where the patients are receiving medical care in both places, as this patient is. I would understand so anyhow, that cardiologists and diabetes-doctors, who treat the patient... [could do the same]. In truth, it would better serve the patient, if the doctor taking care of the Marevan treatment had received valid information. It wouldn't hurt anyone [to forward the information], I don't understand that. Why can't it be delivered? It should be for the advantage of the patient, or, or, what is it then. Or what does the patient think about it himself? That they should be sent to the personal doctor (GP) or what ...***"**

Later, when considering the problems in communication, one of the researchers took up the question presented by the cardiologist. The question was about whether GPs have time to read the documents, if they are

forwarded to them. The answer, which was given by one of the GPs, is an example of a critical reflection on a suggestion.

Researcher: "Just a short question, taking up from the hospital doctor's question to the GPs, about whether they have time to read those papers, when there are lots of them. I got interested in this question, that does one have time for all that here?"

GP: "… yes, one has got the time. But, then, it's a different thing, how that information is applied, but yes, one has got the time. It's an essential question for me to know why it happens like this, that the information is not delivered or how, in practice, that information is transferred on paper from the specialized medical care to the health station. In practice, this means that the doctor in specialist care dictates a list for delivery at the end of the appointment. After that, it's typed, copies are taken, the health station of the patient is searched, it gets put into the envelope, it's mailed, and I wonder if anyone has estimated, let's say on the HDHUC-level, what this whole business, this mailing business, would be after every consultation information being sent to all parties of the medical care. Then if one goes into that, if only essential information is being sent, then who's going to appraise what's essential, who knows what the essential information is? In the health care of Helsinki, there are 100.000 visits per year and the information sent to the health stations of every one of them is 100.000 letters every year. It's hard work."

The collisions and argumentation could be observed most clearly in the final part of the meeting when there was discussion of the main responsibility of medical care and division of labor between the different providers. The patient himself said: *"I haven't expressed it any better, that. The idea is that if there was a need to take the Marevan test here tomorrow and I had visited the university hospital a day before, I would have confirmed with the doctors the test being taken at that time and I myself would be the one to tell [the staff] about the results at the next visit by the health station, for example, what were they last time. And the doctor at HDHUC can take it up then, by adjusting the [dosage] of medication."*

The specialist from Consultation Clinic 1 thought that it was the job of the GP to follow the Marevan medication from other providers, and lack of information became the problem. The cardiologist said: "*If the patient comes this often to the follow-ups in specialized care, it would be interesting to hear whether it would be sensible to continue the Marevan care in the place where the patient himself prefers to go… in the place where the patient goes most often. It is also interesting [to find out] to what extent these patients, who are being followed up let's say because of their heart-problem in specialized care, are in contact with their own health center... We have got used to the idea that they come to specialized care in case breathing difficulties [despnoea cardiaca]. But there are now regulations directing them to the health center in every case.*"

Finally all the professionals agreed that it was risky to have three places for medical care for a patient like Tommi. They agreed to arrange a meeting, where the providers involved in Tommi's care would agree about their communication and care responsibilities.

When considering the implementation of the care agreement and the care negotiation, the administrative chief physician from Helsinki Health Office suggested the introduction of both of the tools along with the

process of their development in children's medical care. The leader of the research group, who also acted as a chair of the encountering event, proposed the assessment of these tools to evaluate their suitability for solving the problems of different patients. In the interviews conducted by one of the researchers, the GP and the researcher shared some views about it:

Researcher: "Is there a need for a short version of an integrated care agreement or care plan, which could be put on one sheet of paper with all these treatments provided by the different providers?"

GP: " I would welcome an idea like that with such an ailing patient like this one, if it proves practicable."

Otherwise the actual care agreement was not discussed, although the plan for the medical care of Tommi was negotiated.

5 Conclusions

In this paper I have reflected on the issues of learning in a project where the solutions developed in a previous project for improving children's medical care, where a care agreement and a new work practice of care negotiation, are being implemented within internal-medicine patient care as the series of Implementation Laboratories arranged between patients and professionals of primary and specialized care. I chose one Implementation Laboratory session as an example of such an encounter. I conceptualized the Implementation Laboratories as "border zones" where the learning processes between different communities were intensified. The research question addressed in this paper was: What kind of places are Implementation Laboratories for learning when viewed as a boundary encounter?

Besides the learning challenges, learning at this first phase of the Implementation Laboratory resembles learning at the Boundary Crossing Laboratory described by Engeström, Engeström & Vähäaho (1999b). Learning is interwoven **into** the process of analyzing problems, planning and testing of solutions in order to improve the medical patient care. Learning appears as a collision between the different perspectives of the patient and professionals of different organizations. It occurs at the "border lands". Collisions of perspectives lead to questionings and argumentation until shared solutions emerge. Collisions of different perspectives are catalyzed by the data presented by the researchers as a "mirror".

Regarding the process of implementation, tools developed previously to solve similar problems in children's medical care are presented and mentioned, but not assumed. It seems, that the implementation of new tools demands a new process of learning. Also, if the goal is to improve the patient's care, it is not enough to make an administrative decision. New tools and practices have to be "experimented" with new patient groups, new medical care situations and practices. In order to "experiment " the care agreement and care negotiation, the problems and disruptions in the internal-medicine patient care have to be mapped out. Even the phase of "preparing ground" for the implementation, which is under study in this paper, may turn out to be an interesting collective learning experience as an encountering of different perspectives and different ways of practice. Thus, the Implementation Laboratory sessions should be regarded as places for collective learning, where a patient and professionals from different communities of medical practice participate in discussion about problems and their solutions.

The boundaries described in this paper appear different when viewed as "boundary

crossings". Boundaries to be identified in activity may turn out to be much more ambiguous a phenomenon. In another paper in progress (Kerosuo 2000), I identified organizational boundaries in the same negotiation as discussed in the present paper, looking in particular at boundaries as representations of division of labor and norms or rules evolved in organizations as well as professional practices. During encounters the boundaries became visible or encountered when the participants in the meeting voiced a problem or a dilemma, or the patient's medical care was somehow disrupted. The process of encountering boundaries leads to a process of handling key issues, and sometimes a change in the boundaries. Thus, learning at the boundaries is not only a collision of different perspectives, but can also be a process of reconstructing boundaries.

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