

ENHANCING INTERACTION AND LEARNING WITHIN THE WORK COMMUNITY

Hanna Uusitalo, Hilikka Ylisassi and Laura Seppänen

Finnish Institute of Occupational Health

Finland

ABSTRACT

Continuously changing work is a hallmark of contemporary work life. Behind the changes lie, for example, the changing needs of customers, a fluid economy and expanding ICT technology: these all compel us to redefine the aim of work. In consequence, the way of which we carry out daily work needs to be reshaped.

Our case comes from the criminal sanction field, from a prison, which is an institutional organization. The work culture and division of work in prisons is traditionally divided in control and rehabilitation. The criminal sanction field's prevailing strategy in Finland focuses more on open enforcement and promoting a crimeless life after release. To follow the strategy, both control and rehabilitation need to be present in the prison officer's work in a more integrated way than before. Moreover, the new strategic emphasis on rehabilitation requires that other collaborative practices in prisons also need to be reconsidered. One of these practices is documentation that aims at sharing information about prisoners within the work community. Contrary to, for example, social workers, prison officers are not so familiar with documentation, even though they gain considerable information in daily interaction.

The aim of our presentation is to investigate, how officers' and rehabilitation workers' speech concerning documentation evolves during the intervention process, and to define the needs and prerequisites that helped these professionals create and experiment with a new documentation practice.

The data of our study comes from discussions in intervention workshops of five meetings in which a group of prison officers and rehabilitation workers gathered together to discuss their daily face-to-face work with prisoners. The workshops, facilitated by researchers, are based on developmental work research (Virkkunen & Newnham, 2013). The aim of the workshops was to articulate the prevailing work, and design, experiment and evaluate new courses of action to meet prisoners' needs, personnel's well-being at work, and multiprofessional work. The experiment path we traced was the new way of documentation.

We picked out the episodes concerning discussions on documentation and divided them into 1) descriptive or 2) dilemmatic, critical or questioning speech or 3) ideas for improvement. We classified these episodes in relation to interaction between control and rehabilitation workers in the horizontal dimension, or between managers and

workers in the vertical dimension. These types of expressions are considered to show the potential of the shared learning process.

We describe how the interaction between the workshop participants on documentation changes during the intervention process. The preliminary results show that the discussion on documentation has raised the interaction onto a new level. Moreover, awareness of the basis of the new documentation practice has increased. We argue that it is crucial to enable multi-voiced discussion in the developing and learning in organization, in order to provoke shared understanding of the purpose and the practice of the work.

BACKGROUND

Continuous changes in work is typical in contemporary work life. Behind these changes lie, for example, the changing needs of customers, a fluctuating economy and growing ICT technology, all which compel us to redefine the aim of work. As a result, the way in which we carry out our daily work need to be reshaped.

Reshaping means learning. Learning, on the one hand, can be seen as the result putting new way of work into practice. That is, at first, personnel are taught the new way of working and after training they have learnt it. Learning is a cognitive process in one's mind. This kind of learning is implemented in interventions based on the idea of learning as knowledge transfer (Hakkarainen et al. 2004). Workplace learning has also been represented as a combination of an individual's cognitive processes and social interaction in the work community (Illeris 2004).

On the other hand, the design and experiment of the new way of working can be seen as a tool – not as a result – to learn something from one's own work as well as from the work of others in the work community. As a result a new way of work emerges from the learning process. In this case, learning is considered knowledge creation, mediated by the experimentation of new material and social practice (Hakkarainen et al. 2004). Our theoretical framework of learning leans on the latter attitude.

Reshaping also means interaction, since hardly any work today can be done alone in one's own right. Working on one's own, whilst being part of a team, unit, profession or discipline is typical everyday work for each of us. So, each of us is also familiar with the division of labour, as well as the boundaries between, for example, teams and units.

Our case comes from the criminal sanction field, from a prison, which is an institutional organization. The work culture and division of labour in prisons is traditionally divided into control and rehabilitation. The prevailing strategy of the criminal sanction field in Finland focuses on more open enforcement and the promotion of a crimeless life after release. To follow the strategy, both control and rehabilitation need to be a more integrated part of the prison officer's work. Moreover, the new strategic emphasis on rehabilitation requires reconsideration of other collaborative practices in prisons.

One of these practices is documentation that aims at sharing information about prisoners within the work community. Contrary to, for example, social workers, prison officers are not so familiar with documentation, despite gaining a considerable amount

of information during daily interaction. Prison officers are key actors in putting the criminal sentences into the practice (Bruhn et al 2014).

Prison as a work milieu is strongly rule oriented. It has a traditionally strict division of labour, and trust manifests itself in a specific way. (Aakjær 2013.) It can be described as a bureaucratic and hierarchical organization. In a bureaucratic organization, professionals are situated in official lines, and orders are transferred top down. (Diefenbach & Silience 2011.) This hierarchical organization strongly shapes how work is developed and learned. The developmental intervention presented in this paper not only promotes experimentation with new innovative practices, but also tries to enhance both workers' individual agency and a new kind of developmental culture within the prison organization.

The aim of our presentation is to investigate how prison officers' and rehabilitation workers' speech concerning documentation evolves during the intervention process, and to define the needs and prerequisites that helped these professionals create and experiment with a new documentation practice.

We had two research questions. First, how does the personnel express their needs and ideas of the new collaborative practices? Second, how does the interaction between the prison officers and rehabilitation workers on the one hand, and between the managers and personnel on the other, evolve to enhance the development of the collaborative practices?

First, we introduce the expansive learning cycle as a theoretical framework for guiding and analysing the learning process. Second, we describe how the intervention process is connected to the expansive learning cycle. Third, we introduce the data analysis originating from discussions in the intervention process workshops. Finally, we sum up the findings and discuss how experimenting with a new work practice enhances interaction and learning.

EXPANSIVE LEARNING IN THE INTERVENTION PROCESS

The intervention process we executed was an application of the Change Laboratory. The Change Laboratory is a structured intervention method based on the theory of expansive learning (Engeström 1987). In this learning process, the results of learning are not predetermined by the purchaser or the interventionist. Instead, the results and outcomes are designed by the participants as they work out potential solutions to the disturbances they face in their daily work. (Virkkunen & Newnham 2013.) It is potentially expansive because in this process the participants may obtain a new large-scale picture of their work and transfer and implement this new understanding to their work practices (Engeström 1987).

The cycle of expansive learning (Fig.1) illustrates the learning process occurring in an intervention process. The basic idea of the learning cycle is to analyse work and recognize its developmental phase. This in turn informs of the need for development, which leads to modelling and experimenting new solutions for performing the work. The intervention process starts with collecting and bringing out descriptions from daily work situations, called mirror data. Usually this mirror data is in some way a

problematic or innovative situation at work. Secondly, interventionist offer participants a second stimulus to analyse the problematic situation, which may lead to a novel understanding and insight into the work in a larger perspective. (Engeström 1987.)

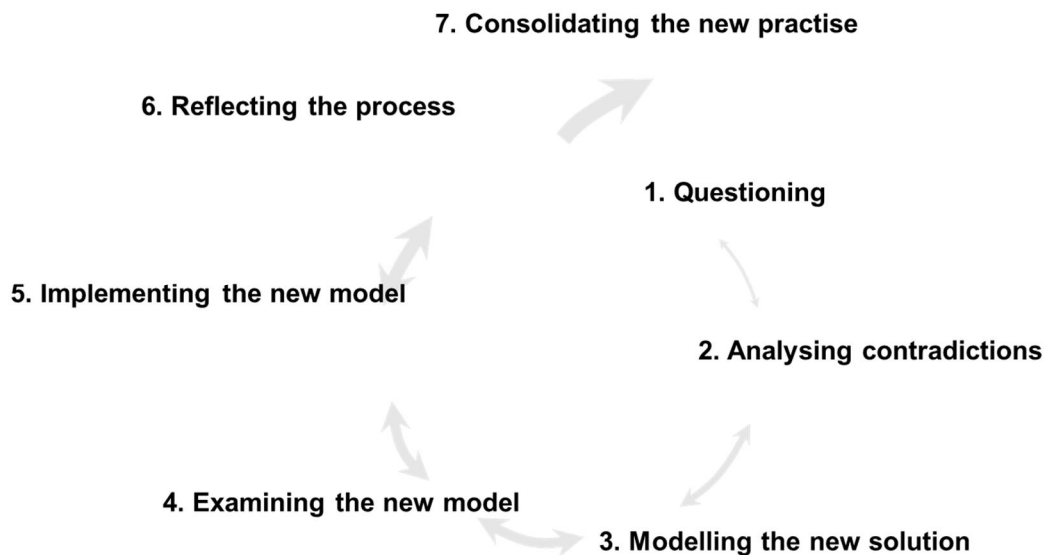


Figure 1. The cycle of expansive learning (Engeström 1987).

During the first phase – questioning – a person faces a growing amount of disturbances in his or her work, and criticizes the prevailing practices, but cannot define the origin of the dissatisfaction.

During the second phase – analyzing the contradictions – we try to find the preliminary explanatory mechanisms and origins of the disturbances by analysing the current practices. In this phase, a person experiences disturbances in their current work, but there is no relevant way to solve the daily problems. It is as though the various elements of work are not in synchrony.

During the third phase – modelling the new solution – the explanations of the recognized and analysed problems result in the externalization of the potential solutions of the problems. This externalization can be heard in the speech of the intervention participants as they discuss the reasons for and design of new work practices.

During the fourth phase – examining the new model – the new model is tried out at work to determine its possibilities and weaknesses in solving the problems.

During the fifth phase – implementing the new model – the work practices are spread to other parts of the organization.

Finally, reflecting the process and consolidating the new practice are phases to reflect and evaluate the process and the learning in order to further develop work and learning practices.

This expansive learning cycle is a general model of learning. However, the local historical tradition has inevitably an influence to the development and learning processes. Thus, each implementation process is a creative learning process of its own (Virkkunen & Newnham 2013).

In this intervention process we faced a hierarchical work community in which the division of labour is strong, and each professional or expert concentrates on his or her own specific tasks. Consequently, the personnel has different perspectives as regards the object of work. Managers are supposed to govern and control the work system as a whole. Regretfully, dialogue between the managers and practitioners is often tangential.

Kerosuo (2006) studied the Change Laboratory method used in a hospital institution and revealed problems in the collaboration between different sectors. This experiment encouraged us to focus on horizontal and vertical interaction between different actors in the prison. However, the background to our intervention process in the prison includes the idea of the community in which participants can freely express their opinions and in which experimenting with new ways of working are allowed. The researchers were slightly dubious as to how this type of method would work in this kind of hierarchical institution. Next, we will show the qualitative change in interaction and the willingness to experiment, in order to render our suspicions groundless.

DATA AND RESEARCH PROCESS

The data of our study comes from discussions in the intervention process, in which a group of prison officers and rehabilitation workers gathered together to discuss their daily face-to-face work with prisoners. The workshops, facilitated by researchers, are based on developmental work research (Virkkunen & Newnham, 2013). The aim of the workshops was to articulate the prevailing work, and to design, experiment and evaluate new courses of action to meet the prisoner's needs, the personnel's well-being at work, and multiprofessional work. In other words, the ultimate purpose of the workshop process was to find new ways to put work into practice in prison in accordance with the strategy, in such a way that employees' concerns are also addressed and used in innovating new work practices. The intervention process as a whole lasted about eight months. Before the process begun, the researchers interviewed prison personnel to obtain a picture of the prison's work environment.

Our intervention consisted of five workshop meetings, ca. three hours each, with prison officers, senior officials and rehabilitation workers. The first two workshops consisted of 6-7 participants. The third workshop had three participants. The fourth workshop was twofold: in the morning we met with the same participants as in the previous workshops. In the afternoon the managers of the prison were also present. In the fifth workshop, the managers of the prison, as well as the HR managers of the regional office and the central office, were present. These expanded workshops had 10-12 participants.

The planning sessions preceded each workshop. The managers of the prison, the HR manager of the regional office, and the representatives of the prison officers and

rehabilitation workers participated in the planning sessions. In the two hour-sessions, the interventionists (i.e. researchers) advanced the course and the content of the forthcoming workshop, and after the common discussion, the final course of the workshop was determined. The planning sessions were a great help to the interventionists for implementing the workshops.

The following figure (Fig. 2) combines the intervention process concerning the studied experiment path with the expansive learning cycle. This way we can highlight the role of the intervention in the learning process. In the Figure, the notable assignments, second stimuli (written in bold), in the intervention process are connected to the learning actions. The experiment path we traced was the new method of documentation, using the existing prisoners' data base. The examples in Figure 2 come from that experiment. In the intervention process, the work community also tried out another new practice, but we do not analyse this in this paper. The Figure illustrates only the first, fourth and fifth workshops. We explain the reason for this solution later in this chapter.

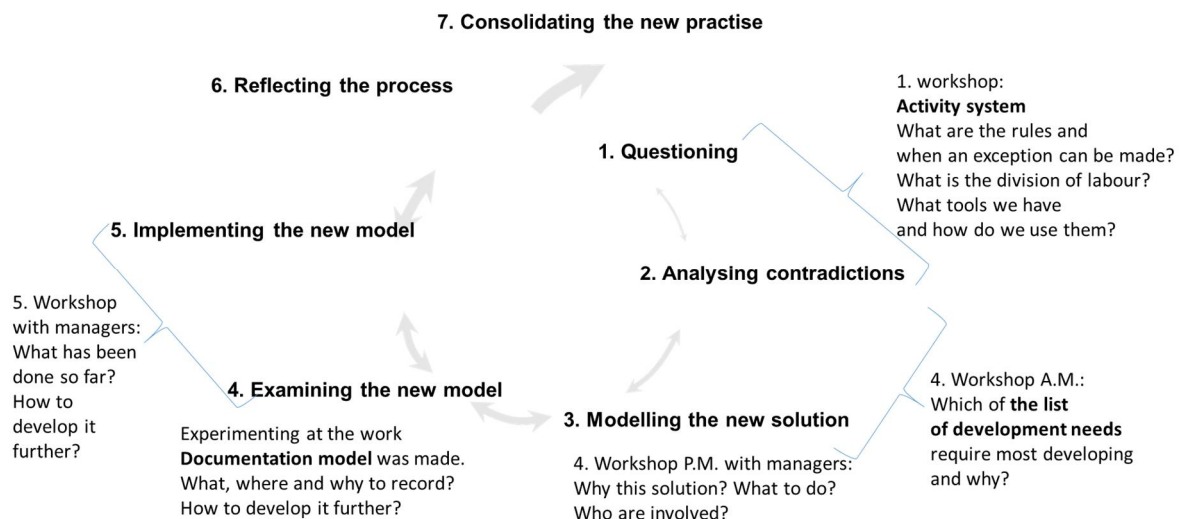


Figure 2. The intervention process.

The first workshops' aim was to question the prevailing common practices and to recognize and start analysing the contradictions at work. The researchers had noticed in the preceding interviews that rules and norms are strongly present in the prison work environment. The second stimuli, the activity system (see Engeström 1987), was offered by researchers to the group to structure the prevailing work. The discussion focused strongly on the rules, but also on the tools and division of labour. It revealed that there were many exceptions to the rules. Thus, this structuring with activity system was one of the initiators for questioning prevailing work.

It is important to examine the history of work since it helps us understand contemporary work practices as a continuum from the previous time frame, and inform us about the future. It also reveals the contradictions caused by temporal development. (Engeström 1987.) This happened at the second workshop, but was

excluded from the data analysis, because the quality of the discussion was the same as in the first: speech about the prevailing work practices, complemented by the historical perspective.

The third workshop was not analysed since only three participants came to the meeting and none of them were prison officers. At this point, the original script of the workshop was changed and the discussion no longer focused on the documentation practices. Instead, the researchers later interviewed three prison officers separately to obtain their opinions.

In the fourth workshop, in the morning the researchers presented a list of ca. ten potential development needs collected during the intervention process. The participants, divided into two groups, selected three of them for further discussion. After the morning session, we had six proposals to introduce to the managers. In the afternoon, discussion concerning the justification of the each propose continued with the managers. The aim of the discussion was to figure out what problem the new solution is supposed to solve. Finally, two development needs were voted for implementation in practice. In addition, the support of the managers was decided to include in the both experiments of practices. The new documentation practice was one of the development experiments selected, because it could be developed locally and the need for development was shared.

Once the documentation practice was selected, the small workshop group immediately began to design how to implement it in practice. The person in charge was named and the first concrete steps were decided. Then the intervention process proceeded to the experiment phase, which lasted 11 weeks. The manager in charge created a documentation model (in which we will come back later) to assist the early stage discussion on the new documentation practice. The practice was further designed with the prison officers and informed to the whole personnel of the prison.

In the fifth and last workshop the experiment of the new work practice was evaluated to develop it further and to enhance the implementation. Again, the discussion was focused on the practice's potential to resolve the recognized problem, the unshared information about prisoners. All the participants agreed on the necessity of the new practice, but admitted that this was not the common opinion of the whole work community.

The group discussions we analysed were from the first, fourth and fifth workshops. They were audio recorded and transcribed. We became acquainted with the whole data before choosing these workshops. The first workshop discussion showed the prevailing work practices and co-operation of the work community. The fourth and the fifth workshops included a great deal of speech about the documentation practice and it was thus important to analyse them.

The data analysis consisted of two phases. First, the analysis commenced by choosing the episodes concerning discussions on documentation. Then, the episodes identified were divided into descriptive speech; dilemmatic, critical or questioning; or ideas for improvement. At this point we had data which expressed the need for development as well as the initial ideas for the development. The expressed needs

and ideas for development were viewed as a potential starting point for the shared learning process.

In the original analysis plan we were next supposed to reanalyse the episodes by classifying them in relation to the interaction between prison officers and rehabilitation workers in the horizontal dimension, or between managers and workers in the vertical dimension. These types of expressions were considered to show the potential of the shared learning process by exposing the nature of the interaction. But, as we proceeded with the first analysing to the fourth workshop, we found a new kind of speech, which did not fit our previous categories. There were episodes about developing practices and interaction. After this finding, we returned to the first workshop data to reanalyse this new category from the beginning of the intervention process. After this reanalysing, we returned to the original analysis plan and classified the episodes by the dimension of interaction. In this analysis phase we found out that the notably vertical and horizontal interaction episodes concerned the developing practices. Inspired by this, we traced the change in the developmental speech.

RESULTS

The researchers considered the discussion at the workshops to be honest and frank, even though the prevailing practices came up individually and occasionally fluctuating and the application of the rules seemed to be diverse.

At the first workshop, the speech was mostly descriptive and dilemmatic, critical or questioning. Both categories featured evenly. Only one episode was analysed as ideas for improvement, but this did not concern the documentation practices.

The first assignment to structure the local activity system revealed relevant critical points concerning the flow of information in the rules, the tools and the division of labour. The Criminal Sanctions Agency has a database which it uses as a common tool for collecting and sharing information about prisoners. Each prisoner has a sentence plan, with goals for the ongoing sentence. The plan guides the execution of the sentence and is formulated at the beginning of the sentence and updated regularly. The discussion showed that the tool is not so common and is not always used in the intended way.

Researcher: How about the sentence plan? Is it your tool?

Prison officer: We don't write anything in it. Should though.

Researcher: Do you read it, for example, the goals of the sentence?

Prison officer: Yes, but we don't really see anything that's in there. An ordinary guard doesn't see everything.

Rehabilitation worker: Everybody sees the goals designed for the prisoner.

Prison officer: Yes, but the guard doesn't see everything written in the sentence plan.

The discussion continued to the work community and how the information regarding the prisoners is currently shared. The work community was wide and the interaction was ongoing, albeit unofficial.

Prison officer: All the other prison officials, rehabilitation workers, health care. We co-operate with all of them daily. We talk about work. Unavoidably it is also corridor talks like hey, this and that, small things. Or during the coffee break, we discuss things a lot.

In the fourth workshop in the morning, the participants were divided in two small groups to select three proposals for development. We analysed the 20-minutes discussion of one group. We found nine descriptive, ten critical or dilemmatic and eight improvement episodes. In addition, several (17) episodes had two or three parallel kinds of speech. These episodes included both the description of the current work and the improvement idea. Thus the participants' speech was generally quite analytical. The episodes did not concern only the documentation, but also other development needs.

Prison officer: I would focus on the same thing, that I wish somebody would say where and what the guard writes and in the prisoner's database.

Rehabilitation worker 1: Yes, what do they want us to write?

Prison officer: What they want, who wants it and where do we write it?

Rehabilitation worker 1: I think that's one need for training. So, that it's the same for everyone.

Prison officer: Yes

Rehabilitation worker 2: And if any of you were to record something somewhere, I wouldn't even know where to look.

The fourth workshop meeting continued in the afternoon with the managers. The agenda of the meeting included introducing the development proposals to the managers, selecting two ideas to experiment in practice, and to design the first steps of the experiments. The speech in the introduction and selection phase was mostly descriptive or critical and questioning, whereas in the designing phase it was supplemented with improvement speech. This workshop made a notable finding: documentation is necessary for managers' decision-making. The manager makes decisions about, for example, the prisoners' weekend vacations, on the basis of the prisoner database, but there is not enough information to support this decision. This finding created a new understanding of the meaning of documentation.

Manager: For example, the permission for leave is one thing. I don't make the decision alone, as there is already the statement and the presentation. But I've had to, and will have to, deny permission for leave because the sentence plan hasn't proceeded. And then I get a comment [from the prisoner] "Of course, it has proceeded. I have done this and that." But there is nothing in the prisoner's database.

This finding led to the idea that it is also important to record positive issues, not only negative ones that result in a sanction. Moreover, the participants reported that the database has a complicated structure and many prisoners should have several remarks, and sometimes the participants just forget to record the important issues.

The fifth workshop meeting's purpose was to evaluate the experiment and to further develop it. The speech had turned to the descriptive (21 episodes) and improvements (17 episodes). However, the critical and questioning speech (14 episodes) remained, as well as some overlaps, although not so strongly.

The documentation model, which the manager in charge had made on the basis of the existing database, received positive feedback. The model consisted of print screens from the data base and suggestions about issues to record. The manager had created it to foster the discussion on documentation. This kind of model with a discussion was a new way of training in prison. The discussion was put flesh on by examining a genuine example from the database.

The manager: And why I did that [documentation model], I think it's difficult to open discussion if there's only a blank paper and you have to think where to start recording. That's why it's, that's just my opinion. If we have something, then we can start to change it and the result can be something totally different. But I mean, how do we start up the discussion? If we have some paper to start from, it's much more fruitful, from the perspective of development.

However, there was still some critical talk about differences in individual documentation. The participants also expressed that recording was not so natural for most of the prison officers. Usually, the prison officer tells the supervisor her or his perceptions, who records this. The solution suggested for this problem was pre-shaped phrases to be used.

Table 1 shows the summary of the first data analysis.

Table 1. Summary of first data analysis

	Descriptive	Critical or questioning	Ideas for improvement
1. workshop	Information is shared unofficially	No common tool for sharing the information	
4. Workshop A.M.	Training for the documentation has been scant.	No common understanding what, why and where to record and read	Uniform training for each about documentation
4. Workshop P.M. with managers	The structure of the data base is complicated.	The information is not available to support the decision-making.	The documentation could contain also positive remarks, not only negative
5. Workshop with managers	The documentation model is good start for new practice.	The documentation is not equal from each of personnel.	The model phrases could help the documentation.

As mentioned, at this point we changed our original analysis plan and traced from the data the development speech from the perspective of horizontal and vertical interaction. At the first workshop we found one episode for this category, which describes new instructions coming top down, i.e. vertical interaction.

Researcher: When a new direction comes, where does it come from?

Rehabilitation worker 1: It's a change of legislation or...

Rehabilitation worker 2: Or from the prison manager or from some higher level

Senior official: Or from the head of the Criminal Sanction Agency

Researcher: And does it come to you by e-mail or in a meeting?

Rehabilitation worker 1. Both and

Prison officer: Pretty much by e-mail

At the fourth workshop in the morning without managers, the participants required training to solve the problems. The Criminal Sanction Agency has an own training center and therefore also a long and strong tradition in training. In the workshop the insufficient training was considered to be the reason for the problems with documentation. Behind this logic lies an idea that somebody has a knowledge for relevant documentation and it is only a question of training to transfer it to the prison officers.

On the other hand, the participants were willing to experiment locally – and had even experiences of experimenting – but shared a worry for the lack of support and control by managers. Therefore the support of the managers was included in the experiment of new practice.

Senior official: How does anybody has extra energy to develop, as the grass roots has tried earlier. It stops either to the manager of the prison or to the next level.

At the fourth workshop in the afternoon, the managers joined the workshop and discussion was directed to the justification of the experiment practice to be selected. One of the managers reflected the development of the documentation practice as following:

In a way, it,s just developing that when you [prison officers, rehabilitation workers] want a prisoner to be transferred [to another prison], then there should be in black and white. So, how do we do it to have remarks there [in the data base]? Or, where is a limit to make a disciplinary remark? Is it so that when you make a remark, then also automatically comes a sanction? Or when there are remarks, for example, on misbehaving, it also has consequences in permissions of vacations. This kind of discussions. It means developing.

In the previous quotation the manager starts to discuss about the developing in a new sense. Nobody can tell how the documentation should be done. Instead, the content and the meaning of the documentation has to be discussed together with all who are dealing with the prisoners. Both horizontal and vertical interaction are needed.

The fifth workshop was after 11 week experiment period. The aim of the workshop was to evaluate the documentation practice. At the workshop there were two notable highlights in the perspective of developing. First, the participants suggested that they could practice by themselves on the side of the work. The idea was that experienced ones could guide novices. Secondly, the documentation model is only a start, not the result of the development. Especially the manager in charge fostered the new kind of concept of developing. At the same time the manager was conscious of the limits when practicing the new discussing development culture, for example haste and shift work.

Table 2 shows the summary of the development speech in horizontal and vertical interaction.

Table 2. Summary of development speech in horizontal and vertical interaction.

	Development speech in horizontal interaction	Development speech in vertical interaction
1. workshop		Instructions and rules come top to down
4. Workshop A.M.	Personnel can develop and experiment new practices, but can't control each other.	Training, support and control are expected from managers Frustration because ideas don't raise down to top and personnel is left alone
4. Workshop P.M. with managers	Discussion is needed, it is developing	Discussion is needed, it is developing.
5. Workshop with managers	The new practice could be trained at the prison department with each other.	The documentation model is a starting point for developing.

Our results revealed a change in interaction during the intervention process. We have to remember that discussion always depends on the assignment. The assignment was not to discuss the development concept, but we still found a change in the discussion about the development concept.

DISCUSSION

Prison as a hierarchical institution has traditionally distributed instructions from top to down to comply the legislation. Savioja et al (2014) have studied work processes in nuclear power plant and discovered that there are differences in actions even though the processes are well described. Our interpretation from this is that precise instructions and rules do not automatically lead to desired action. In this case we found new kind of interaction in developing speech as the participants got a chance to create a new practice. We have studied this locally and a further question came into our minds: what is the potential and possibility of a single unit, like prison, to hijack the development activity wider in an institutional organization.

This paper shows an example of how experimenting with a new practice constructs and enhances developmental interaction. Learning becomes visible – or audible – when the speech includes new aspects regarding understanding the entity of work and new kind of ideas on how to develop organizations' ways of carrying out work. In this case, we have noticed how trying out a new practice generates developmental learning. The open, developmental nature of the documentation model proposed by the manager was a significant second stimulus which supported the new dialogical and interactive mode of development.

For our final conclusion we use a quotation from Virkkunen & Newnham:

The Change Laboratory method is not aimed at producing just an intellectual solution or a change of practice, but also at building up practitioners' collaborative transformative agency and motivation based on the new understanding of the idea of the activity and the new perspective of its future development (Virkkunen & Newnham 2013, 10).

In this application we did not focus on demonstrating transformative agency, but we were able to verify a new perspective of a future way of development, based on dialogue and interaction. This prison was small, which may have helped the dialogic way of development. The new understanding of the idea of the activity and the following transformative agency will be introduced in subsequent studies.

REFERENCES

- Aakjær, M. (2013). *Reconfiguring boundaries in social innovation. Co-creating new meaning and practice in a prison context*. Industrial Ph.D. Dissertation. Aarhus University. Department of Education
- Bruhn, A., Nylander, P. Å. & Johnsen, B. (2014). Professionalization of prison officers in Sweden and Norway: two routes, two different goals? Paper presented at *The 7th Nordic Working Life Conference*, Göteborg, Sweden. Available at <http://www.oru.se/English/Employee/anders_bruhn/#Conference_paper>
- Diefenbach, T. & Sillince, J.A.A. (2011). Formal and Informal Hierarchy in Different Types of Organizations. *Organization Studies* 32(11), 1515–1537.
- Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research*. Helsinki: Orienta-Konsultit.
- Hakkarainen, K., Palonen, T., Paavola, S., & Lehtinen, E. (2004). Communities of networked expertise. Professional and educational perspectives. Oxford: Elsevier.
- Illeris, K. (2004). A model for learning in working life. *Journal of Workplace Learning* 16 (8): 431-441.
- Savioja, P., Norros, L., Salo, L. & Aaltonen, I. (2014). Identifying resilience in proceduralised accident management activity of NPP operating crews. *Safety Science* 68 (2014), 258–274.
- Virkkunen, J & Newnham, D. (2013). *The Change Laboratory. A Tool for Collaborative Development of Work and Education*. Rotterdam: Sense Publishers.