

ORGANIZATIONAL LEARNING IN CROSS-FUNCTIONAL TEAMS - A STUDY OF A SMALL MANUFACTURING COMPANY

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ABSTRACT

This paper focus on enabling and constraining factors for learning where the contradictions are supposed to be handled; the teams meetings in a small manufacturing industry. The aim is to investigate how contradictions in cross-functional team meetings are being expressed through communicative actions and to discuss their potentials for learning and change in the organization. The results shows that different types of communicative actions either enables or constrain the learning process. Democratic dialogue facilitate developmental learning in the team. Meeting in between different team that learn together stimulate organizational learning.

Keywords: Cross-functional teams, Meetings, Organizational learning, Interaction, Contradiction

1. INTRODUCTION

Decisive for whether an organization gets to be effective is largely the outcome of the interactions between individuals within teams (Senge, 1990). Contradictions are seen as drivers for learning and for change in organizations (Argyris, 1994; Edmondson, 2002; Ellström, 2010b). How team handles those contradictions makes a difference regarding the occurrence of learning. Important opportunities for learning to take place are thus the various meetings where teams interact. These meetings can be virtual arenas for participation in innovation and implementation processes, and a possibility to allow critical reflection of current routines and work methods (Ellström, 2010a). Teams can waste energy on conflicts within or between teams, repeatedly make faulty decisions or develop norms that tend to push people into being passive rather than active. But, the opposite occurs as well, that individuals working in a coherent setting creates an effective and productive work environment (Hackman, 1987). Teams influence on organizational learning and adaption is largely undeveloped (Edmondson, 2002). This paper contributes in covering some of that lack of research. More specifically, the area of organizational learning focused on enabling and constraining factors for learning in the interfaces where the contradictions are supposed to be handled; the team meetings in a small manufacturing industry.

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1.1 Aim of the paper

The aims of this paper is to investigate how contradictions in cross-functional team meetings are being expressed through communicative actions and to discuss their potentials for learning and changes in the organization.

1.2 The disposition of the paper

As contradictions are seen as drivers for learning I will take off with how I view different kinds of contradictions in organizations. From there I will move over to my view on how learning in organizations actually comes about and what hinders or enables learning processes.

2. THEORETICAL FRAMEWORK

2.1 The concept of contradiction

Organizations, as well as human beings, can be seen as contradictory and complicated (Dewey, 1936/2005; Easterby-Smith & Lyles, 2003; Seo & Creed, 2002). Contradictions between the individual and the organization can serve as the basis for a constant challenge which, as it gets responded to and demand is fulfilled, can help people to develop and to create viable organizations. Healthy individuals thrives for responsibility, gets committed and takes on self generated demands. The psychological energy in an organization, which is always a product of individuals needs, thrives to reduce tension by reaching goals. This energy makes the very psychological fundament of the organization (Argyris, 1990). Conflicting goals, interests and competing units in the organization's interfaces are typical contradictions in dialectical theory. These contradictions drives, empowers and enables changes and development in organizations. Contradictions cannot disappear but are constantly re-generated. What one can do is to relate to them and handle them. Organizational development does not occur until the contradictions are understood and considered (Seo & Creed, 2002; Van De Ven & Poole, 1995).

Seo & Creed (2002) shows four different kinds of contradictions in organizations. *Legitimacy that undermines functional efficiency*: decisions, agreements and sets of rules which are not constantly challenged or reviewed leads to sub optimisation. Some parts of the system can be seen as somewhat functional but still counteract the efficiency of the organisation as a whole. For example; Titles/names on details in the information system in a manufacturing process gets obsolete when new products, new details or new production methods enters. *Adaptation that undermines adaptability*: We make assumptions on things in order for us to handle complex phenomena and the world as such, These assumptions, structures, hinders us to see the world with an open mind. For example; Designers way of designing products. *Intra institutional conformity that creates inter institutional incompatibilities*: Adaption within a unit creates methods that might collide with the methods of other units, so called inter group unbalances. For example; the sales department adapt to the company's need to make profits by selling as much as possible and promise the customers any kinds of customized solutions while the production, also adapting to the profit target, cuts costs and personnel and hereby ends up in difficulties delivering on time and according to specification. *Isomorphism that conflicts with divergent interests*: Organizational agreements and goals might be in

conflict with the various agendas of groups or individuals. A subordinate might have the freedom to act and to make decision as a paramount objective and thus avoids adaption to organizational needs that forces her/him to compromise her/his scope of action and decision making.

Shapiro (1977) lifted up the contradiction between two functional areas in manufacturing industry – marketing and manufacturing – and meant that increasing cooperation between the two of them are the challenge. Gustavsson (2007) found different contradictions in her study. One was in between the stable and the unexpected in the production process. When the operators came into a situation where their experience and routines did not work, they had to find new ways of handling the situation. Another was the paradox between what the operators could do and what they were allowed to do. A third existed between the formal and informal qualities of goals, the difference between what descriptions said about what to do or not to do and the practical perception of “good” or “bad” quality.

Contradictions are the very fundament for learning and depending on how they are handled, enabling or hindering, various types of learning in the organizations can be brought about (Engeström, 1987; Gustavsson, 2007). This takes us to the concept of learning in organizations.

2.2 Team and organizational learning

Teams are the fundamental learning units in organizations (Senge, 1990). Organizational learning comes trough peoples actions and interactions within groups or teams, driven by both team specific and organizational objectives. (Edmondson, 2002). A level of analysis besides the individual as the micro level and the organization as the macro level, can be the meso approach on the group level. The group level is inherently integrative and simultaneously incorporates factors from two or more levels. Team learning can be seen as “a process in which a team takes actions, obtains and reflects upon feedback, and makes changes to adopt or improve” (Edmondson, 2002, p. 129). Each team in an organization can serve different goal. Some of them helps the organization to explore and develop while others focus on execution and improvement (Edmondson, 2002).

A Team is to be considered a ”working” and ”performing” unit and is to be viewed in relation to its organizational context, the situation and the task at hand. Effectiveness can be measured in three dimensions: The team is to reach its goal with good quality and in due time. The team also needs to have learned something and thus improved its cooperation and its relations. Finally, the individuals in the team should have had the possibility to learn and grow and to perceive wellbeing within the framework of the work the team is doing. If a team is not working as it should this can be viewed on basis of three criteria which deals with *effort* - the degree of effort and focus on the task at hand – *talent* - the degree to which the group uses its knowledge’s and skills and to what degree they need competence development or support in knowledge and *strategy* - to which degree the group have developed norms and strategies relevant for the task at hand. (Hackman, 1987, 1990).

The team learns and develops largely by doing common agreements and by developing norms supporting the group effectiveness. These norms should be based on the team

making decisions in consensus, supports situation analysis, take part in strategy discussions', has a critical approach, stimulates knowledge sharing and focus on the tasks at hand (Hackman, 1987). The group members understand the task at hand commonly and share knowledge and expertise in order to solve it. (Hackman, 1987; Sessa & London, 2008).

Teams learning can end up in the teams improvement and change but also in the organizational learning and as a change in the organization as a whole.

In an overview of definitions of organisational learning, three key issues in learning appeared; the context, the processes and the cognitive structures. Organizational learning is under the same conditions as the individual learning. The cognitive structures (skills, experiences, perceptions and ideas) are affected by learning by connecting perception and external impact with renewal and regeneration. Organizational learning happens in a social, technical and organisational context and assumes a reflective view on how the learning actually comes about as well as on the actual result it generates (Söderström, 1996). The core of the organizational learning is about communication processes between continuities and discontinuities and in between cognition and social processes (Easterby-Smith & Lyles, 2003).

Organizations need to find a balance between the intellectual (cognitive) and intuitive or experience based (contextual) sides of learning (Ellström, 2006). Organizational learning takes place in the interaction between the explicit and the implicit work processes in figure 1 (Ellström, 2010b), The balance between the routine work and the reflection that takes place can either occur in adaptive (single-loop learning) or in developmental (double-loop learning) learning (Argyris, 1990; Argyris, Putnam, & McLain Smith, 1985; Ellström, 2006, 2010b).

2.1.1 Interplaying work processes

The outspoken and visible, also called *explicit*, work processes, in an organization are the tasks, missions, structures and routines that exists and are written in manuals, policies and various instructions. They can also be common understandings or agreements of less formal character or models for follow up or measuring of result that a work place goes by in order to ensure quality. They are the structures for the work that should take place and where it is also crisp and clear how the work should be done (Ellström, 2010b). This side of the work process is "public" and open and rather easy to question or have opinions on.

The invisible and tacit also called *implicit*, work processes in a organization consists of the interpretations and values that works as a basis for how the work really is performed. Power games and other sub surface contradictions may occur. The implicit is more vague and hidden. A given task can be carried out in a number of ways despite the existence of given routines and instruction for how the task should be performed. One and the same individual can also be seen to carry out any given task differently over time (Ellström, 2010b). This side of the work processes is difficult to question or have opinions about as they are difficult to read or grasp.

Based on this Ellström (2010b) has developed his theory about the logic of production vis-à-vis development and about balance between routine and reflection. In his

perspective, knowledge-creating approach, he argues that implementation, transformation and defence are fundamental processes in understanding organisational learning.

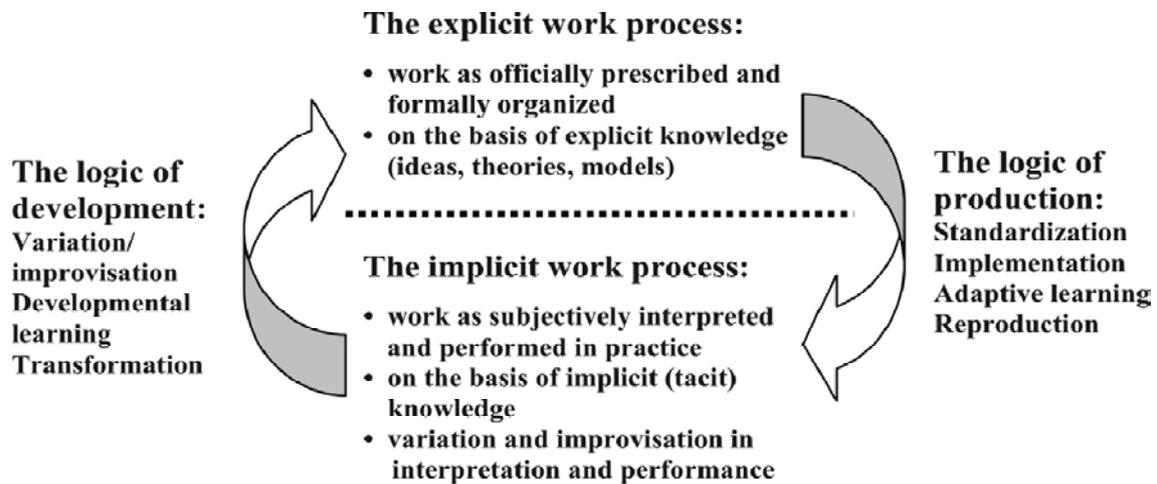


Figure 1 Two logics of learning in relation to work processes and practice-based innovation cycle (Ellström, 2010b, p. 32)

2.1.3 Two types of learning

Knowledge creation is built on the interaction between the implicit and the explicit knowledge in an organisation (figure 1). Ellström (2010b) argues that learning in an organisation takes place in the exchange between these two types of processes in an activity. The logic of production (the right side in the figure 1) where a mastering learning is obtained happens when change is trying to be implemented through a top down perspective, via instructions and rules. In this, also called adaptive oriented learning, the obtaining of knowledge and problem solving based on given knowledge, terms, rules, methods etceteras. The logic of development (the left side in the figure 1) where a more development oriented learning takes place is obtained when the implicit processes are made visible and result in reflective common agreements. The developmental learning is focusing more on the innovative and exploring knowledge. Change and development of given knowledge is central and the goal for learning is formulated as the learning goes by. Questioning, trial and change of given ideas, knowledge and activities are essential. These two dimensions might sometimes oppose each other when it comes to utilisation of resources in an organisation and these two types of learning must take each other into account and supplement rather than compete with each other (Ellström, 2010b; Ellström & Hultman, 2004). (Ellström, 2010b)

Whether learning will occur is a matter of the interaction in the communicative actions in the team. A basic instrument for that is the democratic dialogue.

2.3 Democratic dialogue as a way of developing organizations

Organizations develops automatically if the dialogue is democratic. Criteria's that favours dialogue over monologue includes as follow. Everybody that should be aboard

is also aboard and everybody that should speak up does. As well as the critical approach as the right not to agree is essential – that everybody’s arguments and all knowledge in the team takes into account. There are also a few patterns in the organization that hinders dialogue and thereby development. Such an example is when there is only a few line of communication and especially if they run top down, when tactical considerations and withholding of arguments or when certain co-workers are kept outside the discussions. Democratic systems provides the potential for creativity and development when different ideas, perspectives and interpretations are combined with consensus and common action (Gustavsen, 1990, 2007).

The dialogue is the basis for common understanding. An agreement on the significance and the function of words and phrases used has to be made. Also a democratic system has the power to combine disagreement with common practical action. (Gustavsen, 1990, 2007). Similar to the idea that consensus in organizations must include diversity and different opinions (Fiol, 1994). The democratic dialogue can be seen as an instrument for development work in an organisation even though all situations and all persons not always are symmetrical and equal. With this view the tensions between the explicit and the implicit can be seen as more transparent and open for flows and improving processes within the organisation. Through democratic dialogue opposing standpoints can become a basis for development.

3. EMPIRICAL STUDY; RESULT AND ANALYSIS

In an empirical study, a Swedish small manufacturing company’s (approximately 50 employee) all work meetings were videotaped and observed. In total 12 meetings were included during a period of six weeks, 12 October until 22 November, in the company (Figure 2). In five of the meetings the production team was studied. Another five meetings followed the customer center team Between those intra team meetings two meetings brought both teams together in a meeting for design changing. Follow-up interviews were made with participants from the meetings. The videotaped empirical data, approximately 12 hours of meetings, together with 14 interviews were transcribed in full. The transcription was analyzed using content as well as process analyses with focus on the interaction within the teams and how different kinds of contradictions were handled.

Week 1 12 Oct – 18 Oct	Week 2 19 Oct – 25 Oct	Week 3 26 Oct – 1 Nov	Week 4 2 Nov – 8 Nov	Week 5 9 Nov – 15 Nov	Week 6 16 Nov –22 Nov
Production meeting 1 Customer center meeting 1	Production meeting 2 Customer center meeting 2 Design Change meeting 1	Production meeting 3 Customer center meeting 3	Production meeting 4 Customer center meeting 4	Production meeting 5	Customer center meeting 5 Design Change meeting 2
7 follow-up interviews	3 follow-up interviews	1 follow-up interview	1 follow-up interview	2 follow-up interviews	

Figure 2. The empirical studies realization in time

Some examples from meetings are displayed to show how various organizational contradictions manifest themselves in dialogues between contributors, superiors and subordinate operational leaders. All names are invented.

3.1 A meeting in the production team

The company has been hit hard by recession and has e.g. gone from lead times on 5-6 weeks down to today's 2-3 weeks with cut personnel. The numbers of orders received are still the same but the average order values have been cut to only half its previous value. This has been explained by that the customer does not dare to order as many products as previously (a customer previously rendering 50 units is today down on 25 etceteras). Basically, there is a contradiction between the customer centre team and production team, with the first thriving to bring in as many orders as possible in order to reach the planned turnover while the latter has difficulties managing its mission on half its previous personnel and on - as demanded - half the previous time. The task is many times perceived as impossible but the problems keeps being handled solution orientated instead of the un-balance that exists between marketing and production being made visible.

The meeting is convened by the **Head planner**. Others present are: **Production Manager**: highest chief over the production process including response for all employed, **Production leader 1**: responsible for the first part of the prod process; punching, bending, welding the steel or the aluminum, **Production Leader 2**: Responsible for the second parts of the manufacturing process; grinding, assembling, contact with the painting company and delivery, **Purchase and Quality responsible** and the **Punching Programmer**. **The Marketing manager** usually is present at these type of meeting but at this time his was out of office.

The discussions in the production team often deals with quick dispatch of an order but in which several production steps remains. It is common that the team handles late deliveries where they – in the very last minute – tries to speed up the production process by making various priorities. Some products have to sit idle in the production process in order for other with shorter delivery date to get prioritized. The short quick fix focus of the team makes the problem grow by constantly delaying customer orders in the system.

In the example below the team is dealing with a problem where the customer centre team has promises more to the customer than what the production team can deliver. During the production meeting, the production manager tries to speed up the production process by asking questions. The production leaders, with knowledge on what is really going on in the production processes, seems to avoid answering. Instead the production leaders tries to highlight the, in their perspective, basic problems related to the customer centre teams actions. The production manager, however, does not listen to that. Parts of the meeting were thus more of parallel monologues then dialogues.

Note that one of the production leaders tries to highlight these issues and questions the whole work process from customer through to delivery. He wish to put things to a stop and bring the dialogue to a more explicit level in the organisation. The Production manager on the other hand thrives to find a “short” solution for the very situation and tries to find alternative solutions. He does not get much help as the ones able to find

ways and solutions in their respective operations are the production leaders. It all becomes a zero game that the meeting cannot cope with. Here lays a potential for organisational changes but it is being hindered by power games and by unbalance between what should be done but which in practice is impossible and what is being done but which creates bad statistics.

3.1.1 Meeting sequence 1

The example is from meeting 5 in which a close by coating (painting) company is closing down two days (Thursday and Friday) with the reason of a business trip and where the studied company is behind in the production process and have difficulties getting the products ready for coating before Wednesday. During the meeting the group is standing in front of a delayed delivery or a set of order priorities.

Acting	Utterance/speech	Process Analysis
Head Planner	Then its "Akersunds Plåt" the sweep (<u>svepen</u>) "Peter" is dealing with	Introducing next theme on the agenda
Production Manager	What does it look likes. Tomorrow? (looks at prod leader 1)	Asking a open question
Head Planner	Tomorrow? (looks at prod lead 1)	Repeat the question/probing
Production Leader 1	It is really that they have to be ready by tomorrow because then they close down (the coating company next door)	Doesn't answer the questions. Make the problem more specific and clear
Production Manager	But...aren't they running any extra? Evenings or something?	Asking a leading question
Production Leader 2	Not that I heard	Answering the last question
Production Manager	but then we might have to take it with them and say "it does not work if you close down"	Suggest a solution
Head Planner	We have two issues here, one being "Akersunds" and then "Almtec" when if they are to coat on Monday or Tuesday which do we choose?	Make the problem more clear. Shows two alternatives. Asking a question
Production Manager	Are they going on Wednesday or on Thursday? Are they running on Wednesday as well?	Doesn't answering the question. Asking two new leading questions
Head Planner	They run on Wednesday huh	Answering the questions

	Silence	No one says anything
Production Manager	If they run evenings, which night would we like?	Asking a question
Production Leader 1	Wednesday, Thursday (kidding)	Joking (teasing)
	Laughs	A couple laugh
Production Manager	Yes of course Thursday Friday	Joking back (since they all know the coating company is gone those days)
Production Leader 2	Yeah, but it is. Actually...	meaning that it is some seriousness in the joking since the situation is impossible
Production Leader 1	Yes, but I mean take "Almtec", we have not even bent the sheets yet and it is pretty much welding also on the 40, we have not even bent. They are doing the robot now. Then we have a damn (unheard) it is maybe 10 hours welding only on that. We can run that so but I mean it is, if you add hours, this week is just to forget it can't be done. Neither "Akersund Plåt" or "Almtec"	Explaining the problem as not possible to solve in time
Head Planner	Yes since they close on Wednesday	Confirm the production leaders utterance
Production Leader 1	Impossible. How the hell are we to solve that? They can't start welding until 10 tomorrow or on the afternoon on "Almtec"	Give some more arguments for his statement
Production Manager	If we should run on Wednesday or at night? Don't we have any..?	Doesn't Listen to the arguments. Asking a question, trying to find a solution
Production Leader 2	The grinding... a whole day on Wednesday	Arguing that the problem is impossible to solve
Head Planner	Yeah	supporting
Production Leader 2	then on masking with it takes its time	Strengthen his arguing

Head Planner	Yes it brings.....	supporting
Production Leader 2	Yes it takes a day even if it is run tight and it is the same with "Akersunds Plåt" masking on the other	Strengthen his arguing

3.1.2 Analysis of meeting sequence 1

The Production Manager and the Head Planner ask questions and tries to get information about and make the situation in the productions process visible in order to find alternative ways to prioritize the delayed projects. Both production leaders - who has the best knowledge about the situation – stays largely quiet and do not answer the questions. Their silence tends to reduce conditions for learning. Those who request knowledge, the head planner and the production manager, does not get any help from the persons most likely to have the knowledge; the two production leaders.

Production Leader 1 tries to make the impossibility to produce the products on time made visible by putting emphasis on the tough situation in general in his part of the production, The Production Manager does not listen but maintains his trials to find a solution. In this situation he does not seem willing to receive the knowledge that Production Leader 1 tries to share. Not to listen or not to take a questionings within the organization seriously is a way of putting a lid on things and a way of hindering developmental learning.

3.1.3 Meeting sequence 2

The sequence below is a continuing of the example above where one of the Production Leaders a little later during the meeting tries to depart the issue at hand and instead address the problem on a more basic general corporate level, the explicit level. The tone is both upset and despondent. The Production Manager tries to refer the problem to the Customer Centre team and want the group, during the meeting, to rather focus on making decisions on the specific customer projects "Askersunds Plåt" and "Almtec" previously discussed.

Acting	Utterance/Speech	Process Analysis
Production Leader 1	Yes but that is the way we are squeezing things in between all the time. With other words we get stuff to push back and we push stuff back that we are already working on like now and just the thought of squeezing in "Olmvik" this week ... How the hell are we supposed to make that? It eats two tons of material.	Describing the problem. Asking an open question
Production Manager	Is it "Olas" decision? Did he talk to your? (turn to the Head Planner)	Does not answer the question. Asking two

		leading questions
Head Planner	No	Answering the question
Production Leader 1	We can't (unheard) and then we need 10 to "Affla" and that is also a must but all that stuff can't be done at once	Strengthen his arguing
Head Planner	but I'll move the "Hagströms" because ..it was stopped first	Suggest a solution
Production Leader 1	It would hardly have helped out - to stop it after three days.....damn we should have had four days to make 100 boxes with 2 tons of material	Explaining the problem wider
	Silence	No one says anything
Head Planner	I will talk to "Ola"	Suggest a solution
Production Manager	But we need to take "Akersunds Plåt" and "Almtec" but we have to twist these. We have seen that "Akersund Plåt" is a hell but we must take contact with the customer first. We have spoken to "Almtec".	Does not listen. Suggest solution. Trying to find possible ways to handle the case
Production Leader 1	but what is it? Last week we said it was "Olmvik" which "must", "it has to" but what others are we to...because if we push...I mean now the statistics is a disaster! It is all read! more than what is even possible!	Getting angry. Describe the problem wider
Production Manager	Yeah, but as I see things its "Akersund Plåt" shat needs pushing"Almtec" is as bad already...it is just that we have to talk to customer centré team. That's for them to solve, it's that simple.	Does not listen to the wider problem. Trying to find a solution. Suggest that the other team shall solve the problem

3.1.4 Analysis of meeting sequence 2

The production leader highlights basic problems in the organization where the customer centre group puts production orders that according to him is impossible to produce against. The head planner listens and promise to take the issue further. A possibility for learning in the organisation occurs. The customer centre group should get feedback on their work through the head planner, which is one fundament for visualizing a need for change.

The production manager continues to find ways to handle the task but the production leader does not respond and does not contribute to discussing solutions on the situation at hand. Hereby he closes the possibility for the group to learn in order to improve their performance and increase the delivery precision in the production. Instead he maintains his questioning. A conflict occur. Finally the production manager surrender and refers the issue to the customer centre group. Hereby a potential for a development focused learning is opened, as a basic problem in the organization is made visible for others involved.

3.2 A meeting in between the two teams - a design change meeting

Next example is from a design change meeting where costumer centre team and production team meets. They meet once a month with the purpose of solving general problems in the work processes. There is two kinds of contradictions here; the first one is about designers interpretation that their design will automatically work through out the productions process but where, in reality, problems often occurs the first time a new product is being produced. The other contradiction is that design made from an explicit customer request is not always the best for the customer.

The production leaders are normally the ones calling for a meeting and it is also the **production leader 1** from the first section that leads the meeting sequence 2. Present at the meeting is all **design engineers, the marketing manager, the production manager and production leaders**. The meetings often include the production leader delivering feedback on things he believes not to be working between the groups. Problems and issues regarding common labelling, new routines that has to be enforced and some production technical issues they have to face following on a newly installed sander.

3.2.1 Meeting sequence 3

The production leader starts off by describing a problem, which ends up in two different types of problems with different solutions. The first issue are new designs that for the first time are run through the production process and with problems occurring in any or several work stations like punching, bending, sanding and assembly. He calls for a quicker feedback process and designers “standing on their toes” to do immediate changes. A suggested solution is a document which should pass trough the production process and finally end up at the Customer Centre team.

The second problem has already been discussed in a previous production meeting where it was referred to the very design change meeting now being presented. Some designs appear to be less logical when run through production. Especially products “inherited” by acquiring other companies and where the entire design has been done by others, or designs based on an explicit customer request. The production leader would like to see more frequent customer contacts in order to suggest smarter solutions on some designs. He also states that some designs are unnecessarily expensive. The company should be able to help the customers to better and less costly products. Production leader 1 has gone through a lengthy description off the problems they are facing. He ends up where the sequence begins – with his statement the some of the company’s customers should be paid a visit.

Acting	Utterance/Speech	Process Analysis
Production Leader 1	No but I think we should do it on the things where we see a future and where we can see a problem	Telling his statement
Production Manager	But what you are getting at is that you want the feedback from production	Listen to one of the problems and giving a summarized respons to that
Production Leader 1	Yeah	Agreeing
Production Manager	On new products	Going on with the respons
Production Leader 1	Yes	Agreeing
Production Manager	And it is really what we have been saying for ever...what we should start with, I think, that we should have a document saying that it is the a first time delivery and where the operators writes "our opinions" and such on this product	Suggest a solution
Design Engineer 1	Mm	supporting
Production Manager	Because it easily become a "in there, out there" (illustrating that oral information goes in through one ear and out through the other) one need something actual...or what do you say?	Keeps arguing for his suggestion with a document. Asking a question
Design Engineer 1	Yeah, such a document isn't wrong because say bending gets a problem and he has to write and then it comes to assembly and he also sees a problem but it can be a conflict between them. Maybe both can't be done. The risk is that first when bending says "Can I change that?" "Sure" and then when it is assembled it doesn't work.	Supporting the idea and gives a wider description of the problem
Production Manager	Yes and maybe half can be sorted away directly because the sales guy happen to know it should be so and so but when you guys in production gets the answer that " this and this and this	Keeps arguing for his suggestion out of earlier statements

	needs to be discussed with the customer but that could be said right now”.	
Design Engineer 2	And it is pretty much you have to call the customer about these days. This week for example I had to call “John” (Sales Guy) and he says ”no, it has to be 6 mm because otherwise it gets to weak and we cannot change that” and I thought ”whatever, I call the customer because I have some questions anyway” and I called and said ”can I do this instead?” “Sure – No problems” th customer said, you know... and knowing that we would have had to make a 6 mm piece and weld it 6 times	Supporting the idea of customer contact. Describing the problem and the solution wider
Production Leader 1	Yeah I know	Agreeing
Design Engineer 2	And it would have cost us 500 SEK	Arguing more specific
Production Leader 1	That is part of what I am getting at, we had a thing like that the other day..it was...we had to put two hours in the shop even though a phone call to the customer would have solved everything... and it is those calls to the customer, but I don’t say to all, I agree that we can’t call all the time but partly it is the personal connection with the customer, it’s important	Clarifying the problem and the solution. Suggest limitations
Marketing Manager	Yeah, yeah	Agreeing
Production Leader 1	You know Tim (marketing manager) you can’t argue, when you come to the customer and propose solutions like we did last week. Then the customer often buys them because...then he gets..	Convincing
Marketing Manager	It’s like this huh, it’s kind of a special case with these customers because you can say like this in general. The times we take a business in here it is when we can do as we want to do. We add our hinges, we add our locks, we add our way of manufacturing but we have inherited or bought customers and I	Agreeing and arguing for the solution with customer contact

	agree, of course we want to...	
Production Leader 1	But take “Jamie’s” (Design engineer 2) case as one example out often and “Jamie” was the only one to call and all of a sudden he could change everything he wanted to. The other nine we might have thrown 5000 (cost extra to do wrong) in the containers	Arguing more specific
Marketing Manager	Yes	Agreeing
Production Manager	Yeah	Agreeing
Production Leader 1	This is what I am getting at, sure the first time we might do it but when we have delivered the bow to the customer, where we see a future, well I can’t see if these are good customers, yeah I know dammit but these customers buy x numbers of boxes for x millions per year	Keep on arguing for customer contact
Marketing Manager	Yeah I agree. I buy that.	Agreeing

3.2.1 Analysis of meeting Sequence 3

The Production leader is questioning the common work methods and routines. The production manager supports the views of the production leader. The designers listen and confirms by adding similar problems of their own. The production leader confirms the views of the designer by showing that he has understood things “right”. The marketing manager is largely quiet but confirms at the end by giving his explanation to the problem. A development focused learning is made possible when questioning and listening make problems explicit.

4. DISCUSSIONS AND CONCLUSIONS

It is obvious that shortcomings in listening or not taking questionings within the organization seriously are constraining factors for learning. The contradiction does not become visible and thereby possible to influence. Also, not responding to questionings regarding a problematic situation works as a lid on the learning process. It could be compared to the creation of defence routines where individuals as well as organisations try to defend themselves from this uncomfortable thing called learning (Argyris & Schön, 1978). Also fear and anxiety creates behaviours that struggle for psychological safety in the same way (Edmondson, 2002). It could also be seen as the theory on political power games (Buchanan & Badham, 2008) and one of the four types of contradictions in Seo & Creeds (2002), is in focus. The production leaders are

concerned about their decision latitude and do not want the production manager to have influence. The production manager does not know enough about the production process, despite his responsibilities and formal power of authority.

Seriously listening to problems and questionings in the organization seems to be an enabling factor for learning. So does adding of personal experience to the story being told, intensifying of the dialogue and stimulating to more of concrete description of the situation and the contradiction at hand. In some ways it seems to be important not to give up questioning. To keep on struggling just for the sake of it obviously gives some attention after a while. It is also clear that bringing the issues further on in the organization, where they can be handled by all competencies involved, is a learning facilitator.

It is important for organizational actors to be aware of the impact of defensive routines and anxiety within the organization. It is also important to make efforts for increased transparency and the development of a democratic dialogue in all work meetings. Being too much solution oriented whenever potentials for developmental learning appear, or being too much problem oriented when there is a need for adaptive learning, seems to hinder the learning process in team meetings. Participants in meetings needs to be aware of the learning process in order for them to balance the two types of logics for learning.

The contextual factors with a much too high work load and an impossible task should be an important factor to discuss. If teams do not get appropriate work conditions no one can expect them to be effective (Hackman, 1987, 1990).

Questioning or giving feedback on common routines could be a way of making contradictions explicit in the activity. The design change meeting, exemplified earlier, showed team learning in the logic of development (figure 1). That process also opened up for organizational learning. Different cross-functional teams which meet and discuss common issues, under circumstances where a democratic dialogue occur, can bring about a potential for learning and organizational change.

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