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Orchestrated workplace learning

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Abstract

This paper addresses challenges for orchestrated workplace learning – in practice and in theory. Orchestrated learning differs on the one hand from learning which is tightly connected with the carrying out of the daily work, on the other hand from institutionalized forms of learning mainly taking place at technical colleges, professional schools, etc. The paper argues how new ways of orchestrated learning can contribute to development oriented learning, discusses formal and informal attributes of workplace learning in the search of synergies between formality and informality, and finally shows how the shaping of the organisational learning space influences the potentials of orchestrated workplace learning.

Introduction

This paper addresses challenges for orchestrated workplace learning – in practice and in theory. Orchestrated learning differs on the one hand from incidental learning which is tightly connected with the carrying out of the daily work – and which much research on workplace learning is dealing with (Woercom 2003). On the other hand, orchestrated workplace learning differs from institutionalized forms of learning mainly taking place at technical colleges, professional schools, etc.

Thus, the paper contributes to the discourse on informal and formal learning. Orchestrated learning activities have attributes of both formality and informality: Formality via the formal, scheduled setup, informality by the very open agenda of the sessions and through the absence of any kind of assessment. The paper also reflects how elements of the organisational learning space become barriers or promoters of the orchestrated learning.

The paper is a result of reflections on an action research project in the framework of the workplace learning research of Learning Lab Denmark. The intervention in this action research project (Clematide & Jørgensen 2003) was done together with employees and managers in Danish public utility companies.

The paper is structured as follows:

Firstly, the theoretical understanding of workplace learning lying beyond this paper is presented.

In the second chapter the concept of orchestrated learning is developed.

Then the empirical basis for this paper, the interventions in a couple of public utility companies in Denmark, is described.

In a fourth chapter the forms of orchestrated learning which managers and employees in these public utility companies participated in, are checked for their formal and informal attributes.

In the following chapters, insights from the first chapters are brought into the discussion of questions like:

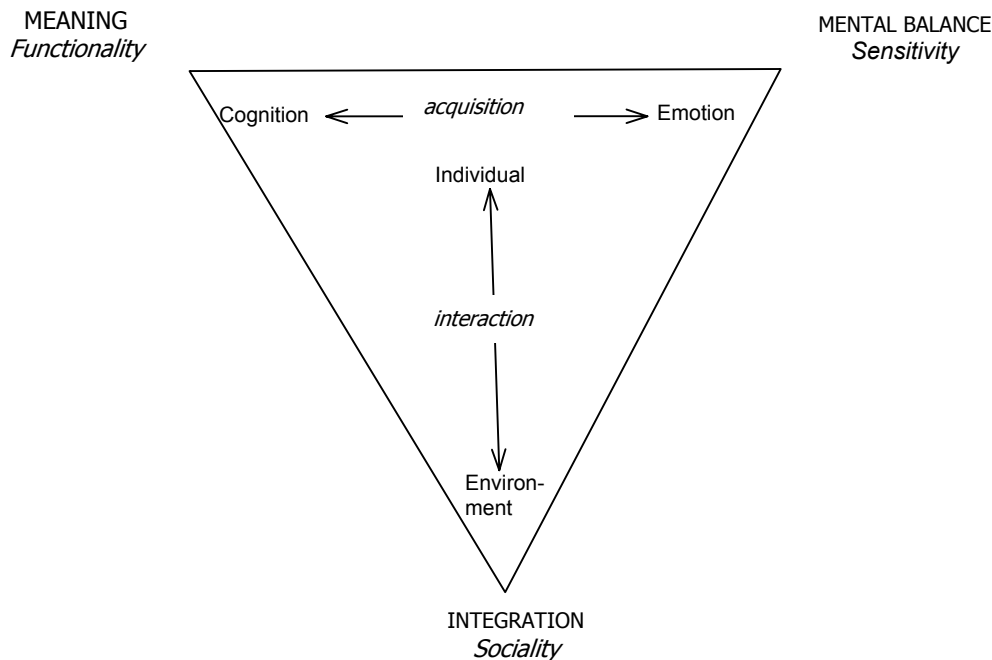
Can new ways of orchestrated learning pave the way for the logics of development that is characterised by emphasis on thought and reflection, alternative thinking and risk taking, tolerance for ambiguity opposite to the logic of production with its emphasis on effective action on a rule-based level, standardization and avoidance of uncertainty (Ellström 2001 and 2002)?

Which characteristics in the organizational learning space (Bottrup 2002 and 2004) can hinder or further learning in a fruitful interplay between the logics of production and the logics of development?

How to find synergies between formal and informal attributes of orchestrated workplace learning?

Specific characteristics of workplace learning

Illeris (2002) developed a general model of learning – see figure below. The model illustrates that learning always implies processes inside the individual learner and at the same time between the individual learner and the environment.



What makes Workplace Learning something specific? The specific factor in workplace learning is the character of the environment: the interaction takes place at the workplace as an organization, and the other individuals you interact with are colleagues and managers. It is the environment that is crucially different from other arenas where learning takes place, i.e. educational institutions or the civil life.

Below a couple of crucial characteristics of the specific workplace environment are described.

Learning is not the primary goal

While learning is supposed to be the primary goal of the activities taking place at educational institutions, learning will never be the primary goal for workplaces, neither public nor private ones. Learning at workplaces therefore takes place as an integral and implicit part of the performing of work tasks. As a kind of spin-off, if the carrying out of work tasks and the work organization demand or allow learning, or if and when employees deliberately look for and find small intervals of time for learning in the community of practitioners. Exceptions are the rare and special occasions when time for learning is explicitly scheduled.

Workplace learning relates to demands from outside...

In spite of the fact that the term of workplace learning connotes internal processes inside an enterprise, a public administration unit etc, it relates to a high degree to demands from outside the organization. The single enterprise of course is not an isolated unit. It has constantly to reflect changes in the market, political regulations, etc. This implies that the substantial challenges for workplace learning enterprises are facing, can differ enormously from enterprise to enterprise, depending on the demands the specific enterprise has to deal with.

For the time being globalization is constantly mentioned as the one decisive factor influencing the products and services that are produced by enterprises. The global division of labour leads to outsourcing of some of the activities to other parts of the world, and to new skills needs in relation to the remaining activities in the enterprise. There are, however, no automatic mechanisms, no causal relations: The demand for permanent changes that lead to constant flexibility (Sennett 1998) – with rapid change of core competences and the corrosion of characters as consequence – is much stronger in some parts of industry than in others. Globalisation means much more for the Google employee than for the local haircutter in a Danish provincial village.

...and is dependent on in-house politics

Moreover, there is no direct causality between the demands from outside and the way competence development and workplace learning are shaped in the single enterprises. Different HR-policies influence essentially on the way a specific enterprise answers to the demands from market, legal regulations, and other outside variables. Like the debate on technological determinism in industrial sociology revealed large differences in terms of work organization with the same kind of technology (Kern and Schumann 1984, Banke and Clematide 1988), there is research-based evidence that precisely the same market conditions are coped with in completely different ways regarding HR-policies. Houman Sørensen and Sommer (1997) show for example, how firms in the Danish roughage industry tackled market demands in completely different ways. While one firm tried to cope with the changing market conditions by a competence development strategy, another one tried to find technology based solutions with the aim of reducing skills needs as much as possible.

Ellström (2004) concludes with reference to a large survey on competence development activities in Sweden, that factors from outside are important but not sufficient to explain decisions on and the concrete shaping of competence development strategies in the companies. Ellström develops the following decisive factors that determine whether and how external demands are met with competence development strategies: the internal actors' general, basic interest in competence development, their wish and capability to promote development processes, and last not least mutual confidence between managers and employees.

Ellström develops on the basis of the mentioned study three different types of logics that lie behind competence development strategies: The first and most used is the target-means rationale where more or less systematic skill needs analyses lead to competence

development plans with both workplace learning and external cvt initiatives. This functional rationale is often labelled strategic and systematic competence development. The second rationale has a strong conflict-control perspective. Management tries through competence development strategies to control what is going on in the firm. Social dialogue between the parties is not part of this rationale. Consequently, employees can only influence the agenda of competence development through strong union representatives. Ellström calls the third rationale the neo-institutional perspective building on normative impressions of what characterizes a modern and effective organisation. What counts is to be up-to-date, to follow the latest trends, and by doing so to signal internally and externally that the firm is in touch with the changing world.

The concept of orchestrated workplace learning

Enterprises and public workplaces may adapt many different approaches to competence development in their attempt to cope with changing external demands, technological developments, etc. The choice will be influenced by the possibilities for external cvt-provisions publicly funded, funded by the social partners or available on the free market. Even in countries with rather well developed public cvt-systems also in-house measures are taken. And a lot of learning takes place incidentally during the daily work.

This paper concentrates on orchestrated workplace learning. Orchestrated learning differs on the one hand from learning that is tightly connected with the carrying out of the daily work, and on the other hand from institutionalized forms of learning mainly taking place at technical colleges, professional schools, etc.

Orchestrated workplace learning can take many forms and be established everywhere, for instance when newcomers are shown around at the workplace, when after-work meetings are held in the last working hours of the week, when the super user is instructing colleagues in the use of the intranet. Orchestrated workplace learning will always have a character of consciously taken initiatives by somebody in the workplace.

The concept of orchestrated learning helps to conceive activities like history workshops, theme days, and mutual interviews between employees, forum theatre etc. as learning activities. Consequently, orchestrated workplace learning covers more types of workplace learning than the often-used concept of incidental learning includes (Clematide et al 2004).

Orchestrated workplace learning has both formal and informal attributes, as it will be illustrated based on experience from an action research project presented later on in this paper. The findings give further support to Malcolm, Hodgkinson and Colley, (2003) in their conclusions that there are both formal and informal attributes in most learning activities, that the widespread understanding of workplace learning as informal, and of learning in educational institutions as formal, has to be rejected for good.

Formal and informal attributes of learning

Following in the wake of Lave and Wenger's focus on situated learning (Lave and Wenger 1991) and Wenger's defining of the concept communities of practise (1998), part of the research has tended to regard informal learning as better learning than formal learning, not least because it takes place among work colleagues, and outside school and the power structures between the teacher and the learner. Bottrup and Clematide (2003) and the anthology about learning in a field of tension (Bottrup and Jørgensen 2004) argue in favour of a more balanced view.

Firstly, Malcolm, Hodgkinson and Colley (2003) exclude the prevalent understanding that workplace learning corresponds to informal learning, and learning in a school to formal learning. Secondly, in my view, they differentiate in a fruitful way the understanding of adequate balances between formal and informal learning and they contribute to break down the polarization between the concepts of formal and informal learning. Last, but not least, based on extensive literature studies and empirical studies they argue that in almost all learning there are elements of formality and informality.

In fact, they were in the research commissioned by the British ministry of education seeking a clear definition of formal and informal learning. However, their conclusion was that "the problem is a complete lack of agreement in the literature about what informal, non-formal and formal learning are, or what the boundaries between them might be." (*Malcolm et al. 2003, page 157*) Furthermore, they concluded that it is not possible to clearly distinguish between informal and non-formal learning.

Their studies led them to the identification of four aspects of learning which all have attributes of formality/informality.

The four learning aspects are:

- Process
- Location and setting
- Purposes
- Content

Learning *processes* are informal when they are part of everyday activity, whereas participation in learning activities defined by for instance a teacher, are formal. When teachers start more participant-conducted activities, these activities are more informal than teacher-controlled activities. The teacher in this sense may be a teacher in a school or an experienced work colleague carrying out a very controlled training of the colleague sitting next to him.

Malcolm and others also assign the notion of whether an assessment is made or not to the learning aspect learning *process*. If no assessment is made, the process is informal. If the assessment is formative, i.e. conceived as something the learner may learn from, it is relatively informal, whereas a mainly summative assessment – e.g. awarding of remarks – is a purely formal attribute. In the following, I will look at assessment as a specific learning aspect.

Often, especially *the location* of the learning is decisive for whether the learning is regarded formal or informal. Is it in a school, the learning must be formal. Is it in the workplace, the learning must be informal. However, this is not unambiguous. You can hardly argue that for instance a course that normally takes place in a public training centre becomes more informal if the same course is run in an enterprise with the teachers from the same public training centre and with the same forms of assessment - just because of the different location. Moreover, workplace learning becomes an unambiguous formal attribute if the result of the learning is formally accredited with training certificates from the formal VET system. Pure workplace learning may also indeed be formal if it is combined with marks in a wage system.

The setting of learning may have a more or less formal or informal character. Of course, a fixed time schedule according to a fixed curriculum, constitute formal settings for the learning, whereas learning which takes the time it takes, is rather informal.

The purpose of the learning may have a more or less formal character. If the main purpose of the activity is learning, it is rather formal. If the learning is a bi-product of the everyday work tasks, it has a rather informal purpose. In addition, you may distinguish between a purpose defined by the learner himself and purposes externally defined, e.g. curriculum and examination regulated by others.

Malcolm a.o. distinguish between informal and formal *content* of the learning. The formal content is for instance established expert knowledge or necessary instructions. On the other hand, the content of the learning is informal if it comprises development of new insights or open processes where the right answer is not given in advance.

As it may appear from the above, the four learning aspects mentioned are not clearly delimited in relation to each other. You may argue that a power aspect transcends all the four learning aspects. This indicates that the power aspect might indeed be taken into consideration in the definition of formal learning and informal learning: The less power at the location of the learning, the more informal learning, and vice versa.

Anyway, I find that the four learning aspects – and not least acknowledging that all learning aspects may have formal and informal attributes, contribute to a theoretical and practical useful categorization and understanding of informal and formal learning. Malcolm and others emphasize that this is not only a question of concept labelling, but from a theoretical learning perspective it is essential to find synergies, e.g. by using rather informal and participative settings in a formal location, and vice versa.

Orchestrated learning in Danish public utility companies

The empirical base for this paper comes from an action research project (Clematide and Jørgensen, 2003) that took place in Danish public utility companies. We – managers, employees and researchers - wanted to nuance and experiment with untraditional forms of learning, and not least with different forms of in-house learning. Our interest was to con-

tribute to a better understanding of possibilities and limitations of workplace learning. Such an understanding would make companies better equipped in choosing between different forms of learning (external or internal), making sure that the choice falls on forms of learning that are most appropriate, given the challenges that the company and its employees face.

We discussed suggestions for specific ways to experiment with forms of learning that both employees and the companies could benefit from. Furthermore, we have worked as facilitators in history workshops and mutual interviews between employees and other forms of learning that were new in the specific company.

Throughout the process, we have endeavoured to act as challenging sparring partners for both employees and managers in the participating public utility companies. The following description of three cases shows how this was done.

History workshops: learning how to secure tacit knowledge

At the participating waste disposal company, the starting point of the project was the company's future generation change. Many employees have been at the company for the whole of their working lives and have experienced just about every decisive change in the company's life.

The problem then is how future employees can learn that which is already obvious to present staff, and which is actually crucial to know and be able to do in order to function both appropriately and with confidence. A lot of tacit knowledge disappears from a company, when the experienced employees leave.

As a form of learning suited for this particular organisational challenge - generational change – we conducted a couple of history workshops, where employees and managers should discover decisive events in the company's history.

The participants individually filled out small cards with events in the history of the company, events that they found important. The events cards then were put on a washing line in chronological order. Thereafter the participants in small groups divided the total time line into thematic periods. Finally, the participants were asked to 'pack a trunk' with things that were meant to symbolize crucial things to pass to the next generation of employees. Some employees were very enthusiastic to take part in this 'game', while others were more reluctant and some did not participate in the packing of the suitcase at all.

The history workshops led us on the trail of three overriding stories that had been of great importance to the companies' past:

- A history of technology – from water to steam + IT
- A history of environmental demands – constant new demands from authorities
- A history of learning – about how the employees, in their daily work life, have learned things in emergency situations and in connection to a new plant.

After the two history workshops, we decided, together with the internal project group, to keep on working with the learning story. Concretely, this story is about spontaneously learning from the worker next to in the case of boiler-men, which through the years has taken place, when sudden deviations from the plant's normal conditions occurred. In such cases, the experienced boiler-man has shown others how to react. For the most part, this has been a distinctly oral culture with no tradition of writing things down on paper.

But how can one be sure that new colleagues learn about dangerous situations, when the older ones are on the verge of leaving? This dilemma was worked on further throughout the project in an on-going dialogue between the boiler-men and Kubix.

Mutual interview as form of learning about companies' organisational challenges

At the participating district heating utility company, the first analysis showed that continuing vocational training is almost predominantly a purely individual affair. With the exception of technological innovation, there is no tradition of organisational considerations coming into play when planning continuing vocational training. One disadvantage of this practice has been that the organisational insight amongst employees is relatively modest.

This practice was challenged by the project. The company was facing some structural changes that in a five years perspective had influence on a considerable part of the employees. Some work functions were on decline for good. But instead of making these changes something only top management could have a say on, they were discussed at a theme day for the employees.

At this theme day, it was made clear that a budgeted reduction of personnel reduction could not be met by demographics alone i.e. by 'natural wastage'. The functions that were presumably to be reduced were also discussed, as were new functions to be implemented, including the new possibilities this would give to employees.

On a follow-up day the employees from the two departments that were expected to be strongly affected by the coming structural change, the coming changes were presented in detail and there was a presentation of the new services that might compensate for the reduction. Then the employees in pairs interviewed each other, following an interview guide developed by me as an external facilitator, about what they felt good and bad with their present work, whether they had thought about asking for a change regarding the concrete work, and also whether they found it attractive to work with the presented new services. These mutual interviews were done without the presence of the managers. In a concluding part of the follow-up day the managers were informed about the main lines of insights the interviews had revealed.

There is no doubt that these two days had contributed to the organisational understanding of the employees, not least through mutual interviews about existing types of work and about the new functions. The theme day and the mutual interviews also had a part to play in "modifying mental patterns", as it was subsequently expressed.

Workshop on Environment contributed to environmental insights

At the participating water utility company, development activities in the project were concentrated on a small, close-knit group of nine employees. Here the learning space was characterised, amongst other things, by the fact that almost everything was discussed collectively, just as learning activities in general were also collectively discussed.

In our work with the organisation, this practice was explicitly challenged through the preparation of a new plan for cvt activities, where not everyone should necessarily learn the same and at the same time. Now focus needed to be placed on individual learning needs.

There was still, however, shared learning needs that had to be considered, as in the development of an environmental understanding. For this purpose, we implemented an environmental workshop, where employees worked with decisive events in the company's environmental history - events that participants drew on pieces of paper. The participants put these events listed in chronological order on a washing line, and during half a working day they produced a kind of environmental history of the enterprise that gave a lot of insights and mutual learning on how they themselves can impact energy consumption and pollution.

Formal and informal attributes of orchestrated learning

In the project with the public utility companies, the objective was that the workplaces that wanted to participate should be prepared to try some forms of learning which were new to them. It could, of course, be forms of learning that were well known elsewhere, but in the specific companies, and in the public utility companies as such, they had to experiment with new forms of learning. As mentioned earlier, the three workplaces experimented with history workshops, mutual interviews and theme days.

According to the aspects of formal/informal learning presented above, an analysis of the orchestrated forms of learning in the development project shows that the forms of learning represent both formal and informal learning. As indicated in the following, the formal attributes are prevailing for some forms of learning, the informal for other forms of learning.

	<i>Formal</i>	<i>Informal</i>
<i>Location and setting</i>	Time schedule and program are fixed.	Takes place in the workplace.
<i>Assessment</i>		There is no assessment, no certificate.
<i>Purpose</i>	Learning is the main intention of the activities.	The participants have influence on the purpose.
<i>Content</i>	The content of the theme day is predefined by top management.	At the history workshops and in the mutual interviews there is a spontaneous exchange of experiences and views.
<i>Process</i>	The process is defined. The 'teacher' has another status than the learners – as leader at the theme days, action researcher at the history workshops and the mutual interviews.	The content is spontaneously marked by the participants. The action researcher has no formal 'teacher status', but acts as a process consultant.

In relation to *location and setting* all the forms of learning that we experimented with, were formal in the sense that the participants had no influence on the schedule and the program. My Kubix colleagues and I made the schedule and the program of the learning activities according to the available time given by the steering group. All the activities took place in the company and thus had an informal character.

There was no assessment in connection with the forms of learning that we experimented with, neither formative that the participants could learn from, nor a summative giving of marks. In this aspect, the activities were purely informal.

The *purpose* of the activities was unambiguously learning. The learning was not designed to be a spin-off of the activities. This is almost a tautological fact as learning is indeed the crux of orchestrated learning. This formal attribute has in the concrete cases a certain informal counterweight because the participants, either directly or via their representatives, influenced the definition of the content of the day. Most significantly, this was the case for the employees in the participating district water utility company. The wish to work with the development of their own consciousness about environmental issues was a clear result of the process of making a training plan in which the employees have had a high degree of influence.

How much the *content* of the activities was predefined and thereby formal varied much in the described activities. On the theme days in the public utility companies, top manage-

ment largely defined what they wanted to tell – and it was of great relevance to the employees – whilst the subsequent mutual interviews about the present and the future work was an informal, spontaneous exchange of experiences and opinions, although a interview guide was used.

The *process* in itself in the orchestrated forms of learning had both formal and informal attributes. The procedure for the theme day was defined by the management, and for the other activities by my colleagues and me. In return, it was completely left to the participants what and how much they wanted to tell. The two workshops were, inside this overall theme, in this sense totally open and informal. The informal attribute is emphasised by the fact that my Kubix colleagues and I had no formal status as for instance a teacher at the school has.

In the following parts of the paper the relevance of the concept of orchestrated learning with its both formal and informal attributes is discussed with the following foci:

- Orchestrated learning as a necessary part of development oriented learning
- The importance of a learning space that furthers the potential of orchestrated learning
- Seeking synergies between formality and informality
- What content orchestrated learning is fitted for

Orchestrated learning – a necessary part of development oriented learning

Earlier in this paper the tendency to regard workplace learning as the solution to almost every learning need and that the pendulum has swung too much in the direction of workplace learning, was questioned. At the same time, however, it seems clear that workplace learning is a very important learning arena, and orchestrated learning has been presented as a concept covering a series of concrete learning forms with both formal and informal attributes. It seems to be of interest whether and how orchestrated learning can be part of developmental learning that goes beyond adaptive learning.

Ellström (2002) also takes his point of departure in this tendency to integrate work and learning, and discusses this tendency critically by examining the limits when all learning has to be integrated in the work. Not least, the pressure of time in the daily work, which marks the production logic, does definitely put limits to learning. The production logic is characterized by a focus on efficiency in the performing of the work, with fixed rules and reduced freedom of methods. If problems occur, they will be solved according to standardised procedures of troubleshooting. In the production logic, you will attempt to minimize uncertainty and conflicts, and disagreements are regarded disturbing elements. Consensus and standardising, or in other words accept of instructions from above, is the mantra of the production logic.

Learning within the production logic, will primarily be adaptive where the objective of the learning is given in advance in the form of work tasks, prescribed procedures and known solutions. Ellström argues that this type of learning is of course necessary, but for the organisation and the employees, it is contra productive if all learning is assigned to

the adaptive level. The many dead ends of Taylorism have shown how work with very constrained conditions for performing, is partly destroying the work force and partly makes it impossible to meet the development needs which modern companies constantly confront.

Using Ellström's concepts, it is necessary that the development logic is also considered, and that developmental learning is part of the development logic. The logic of development is characterized by time for reflection, by an understanding that disagreements might cause fruitful new thinking, that faults in search for new solutions can be unavoidable and therefore acceptable. Developmental learning may lead to experiments, finding new ways, seeking explanations, and questioning normal praxis. Ellström emphasizes that a balance between adaptive and developmental learning is needed – an important point in a time when at some workplaces it is insisted that development has to be a positive word, whilst it is standardizing and time efficiency at other workplaces.

The everyday in the public utility companies participating in the development project, described in this paper, is dominated by the production logic and its focus on efficiency. For good reasons this is the case for most private and public companies. However, do these companies sometimes break with the production logic and the matching adaptive learning, and engage in more developmental learning? All the participating companies have shown interest in trying such forms in the development project. With no exceptions, both managers and employees have participated actively and have afterwards said that they have benefited from the project. Their intentions to make future follow-up activities, which were drawn up at the end of the project, may indicate that they intend to use the inspiration from the project. Whether this will in fact happen, is difficult to assess. The chances are good that it will happen in the company where they already had the tradition that the employees were allowed room and time to exchange experiences and had a certain freedom of methods in the everyday work.

Based on this development project in the public utility companies, it can be argued that developmental workplace learning sometimes demands orchestrated learning. In other words theme days, history workshops and mutual interviews or other forms of orchestrated learning are necessary, conscious breaks with the production logic.

Learning space and orchestrated learning

Orchestrated learning is to a certain degree by its nature always intentional. Whether the intentions are reached, is influenced by organisational characteristics. Many authors have tried to conceptualize organisational preconditions for learning (i.e. Billet 1998, Helms Jørgensen & Warring 2002, Ellström 2004).

Bottrup (2001, 2004) has developed the concept Learning Space in an attempt to design a framework for the understanding of identifying the organizational conditions for workplace learning. The concept takes inspiration from different research areas: firstly, the industrial sociology, which with its focus on the work itself and the work organisation reveals which impact on the learning possibilities the work process, materials, production

equipment, and not least the freedom of action within the work organisation have. Secondly, from Lave and Wenger (1991) with their main emphasis on communities of practice and social learning processes, and from research on workplace culture (Lysgaard 1967, Schein 1986). Thirdly, from research on the companies' social constitution (Hildebrandt & Seltz 1989) which focus on power relations, written and not least unwritten rules decisive for the behaviour between management and employees and between the employees. In continuation of these three main sources, Bottrup analytically divides the company learning space into a production field, a social-informal field, and a policy field.

Using this concept, Clematide & Jørgensen (2003) make a praxis related proposal on the characteristics of learning spaces that promote learning: A production field which offers a suitable variation in work, influence on the planning of your own work day and freedom of method in performing your work tasks. An informal-social field with good cooperation relations between colleagues, between employees and management, and among the managers, recognition from colleagues and management when you participate in development activities. A policy field where it is fully agreed what is relevant training and suitable conditions for participation in external training, and where it is accepted, that disagreement can be fruitful.

As Bottrup writes in her book (Bottrup 2001) where she develops the concept Learning Space, the learning space is something that is always present in the workplace, something that influences the everyday for the employees. At the same time, the learning space is continuously created and re-created by the employees and the management. Thus, the design of the companies' learning spaces influences the possibilities of orchestrated learning. In other words, it is a question whether the character of the learning space make orchestrated learning a more or less fruitless effort, or the opposite, that the learning space has improved the soil for a successful orchestrated learning.

From the descriptions of the processes in the utility companies participating in the development project, it appears that there were large difference as to how actively the participants wanted to contribute to the learning experiments: history and environment workshops, mutual interviews and theme days.

In order to explain why the orchestrated learning activities succeed rather differently, I will in the following describe some specific elements in the participating companies' learning spaces that we examined in the development project.

At the district heating utility company, external continuing training is often initiated by the individual employee, and accepted by the management either in employee consultations or currently. In general, the management seldom presents specific training plans. The planning of training is mainly at an individual level and not at an organisational level.

Choosing the future of the organisation as the starting point for the orchestrated learning was a clear break with the tradition until then. There has been some uncertainty about the future, not least for those above the age of 50 who are, or have been, uncertain whether

they were to find a new job on the open labour market. This was the situation, despite the fact that the company very seldom sack employees and use to regroup the employees when a work function disappears. No doubt, the theme of the orchestrated learning activities was very relevant. There was enormous interest in hearing what the management would tell about the company's future on the theme day, and the employees were immediately interested in participating in the mutual interviews about their actual work and their wishes for a future work, even though they were not used to discuss so explicitly their private attitudes and wishes for their future work. In return, the character of the learning space was rather a barrier, when it came to a sceptical judgement about the chances of using this kind of orchestrated learning once the project was over.

At the waste disposal company some of the employees opted out when they were asked to 'pack a trunk' with objects it was essential to pass on to the next generation of colleagues. This can probably be explained by some characteristics of the learning space of the firm: The boiler-men who did not want to 'pack a trunk' with objects symbolizing what it was essential to pass over to the next generation of colleagues, were used to be part of a learning space with a strong hierarchy, where wishes of delegation of responsibility had been rejected several times, and where they had experienced that ideas which they had earlier presented, had systematically been rejected. They had difficulty in understanding why they should actually believe that it was of any use to contribute with good ideas, and therefore they did not want to join in. Furthermore, they probably are so strongly influenced by the production logic, that this break with the usual form of learning was too much.

In the participating district water utility company the project took place in the operational department with a close-knit group with high seniority and a rather high average age. Social coherence is characteristic for a good workplace. Everybody wants to respect if a colleague of some reason or another needs to be relieved of some of the work for a period. Every day there is a joint morning meeting where they talk about the actual situation. Has something happened during the night, what do the various employees have to take care of during the day, etc. Moreover, this forum is used to discuss training issues. Normally, there is agreement on continuing training issues. There is culture of mutual openness where it is allowed to ask and where much good advice is exchanged. On the face of it, the learning space seems to further collective learning processes in the water utility company. It seems likely that this contributed strongly to the enthusiasm and curiosity shown in addressing the 'strange ideas' like the washing line, and the session was undoubtedly useful for them.

Seeking synergies between formality and informality

It is hardly possible to find an exact formula for how the synergies between the informality and formality of orchestrated learning ought to be, the balance that ensures that the learners in the orchestrated learning actually learn what was meant to be learnt. It has not been the purpose of this paper to present a research based recipe for the right mixing of formal and informal elements of the learning - purpose, assessment, setting, process and content - in order to obtain a perfect result of orchestrated learning. This is done by pay-

ing attention to the fact that the explanation of successful and unsuccessful orchestrated workplace learning can be found in a suitable or less suitable balance of the formal and informal attributes of the orchestrated learning.

The search of synergies and balances between formal and informal attributes of orchestrated learning underlines that informal is not just 'better' than formal.

In the same way, the purpose of examining the importance of the learning space, considerations about the wanted balance between production logic and development logic, has been to contribute to the understanding of when and under which circumstances orchestrated workplace learning comprises learning approaches from which employees and management at the workplace may benefit.

In this perspective, the differences in motivation and benefit presented above, may be explained as a combination of 'unfortunate' conditions regarding insufficient balance and synergy between formality and informality in the learning session itself, characteristics of the workplace's learning space, the confidence in whether it is seriously meant to experiment with forms of learning which do explicitly break with the production logic which the employees are subject to in their everyday work.

It is possible that the sceptical spoiler-men did not like that the programme of the day was made by us as an outside 'authority' who in their eyes were too closely linked to the management, even though their shop steward had approved the session. In other words, the formal elements of the intended history workshop were perhaps too dominant, even though the workshop was conceived as informal, especially regarding the content and what may come up during the phases of the workshop.

By contrast, the employees in the district water utility company were very interested in profiting from using a whole working day on discussing how they can contribute to prevent pollution, how they can repair a bursting of a pipe most efficiently, how to transport the water with as little energy consumption as possible. The learning space so obviously influenced by this close-knit group invited to open discussions where nobody wanted or needed to hide one's hand.

What content is orchestrated learning fitted for?

If it is possible to reach synergy between informality and formality in the orchestrated learning activities in the workplace, if it is possible to carry out learning activities, and thus break with the production logic that is accepted by the participants and the company, if the learning space reflecting the workplace's everyday life is actually furthering learning, the chances are good that it is meaningful for the employees and the company as an organisation. For what *content* are the orchestrated learning activities best fitted?

Orchestrated workplace learning can facilitate that the employees develop their *technical skills*, as it was the case for the employees in the water utility company where the environment workshop has contributed to increase the employees' insight into their own possibilities of influencing energy consumption and risk of pollution. Experts (Schön 1983)

can through orchestrated learning, which is adequately structured and at the same time open, expand their expertise by joint history telling and by joint reflection on work experiences. Orchestrated learning can contribute to developing the professional skills by render visible, put words on and examine work experiences of another substance than the exchange of professional knowledge that is part of the everyday praxis.

As it is shown in the example with the district heating utility company, orchestrated learning may further *organisational insight* and thus to a still higher degree make the employees control their own future. As a participant said, it may lead to developmental learning in the form of "change of mental structures". For instance a structure that makes you not only sit back hoping that organisational changes do not affect your own job, but more realistic see your own future prospects in a changing company and assess whether you do need to orient yourself to the open labour market.

Orchestrated learning can further *organisational learning*. Organisational learning is characterized by long-term effect of changed procedures and of daily praxis as such, when what has been made within the specific space of the development logic, effects the subsequent production logic, and when the learning space looks different from how it looked before.

In the public utility companies, there are a number of examples of organisational learning in continuation of the orchestrated learning sessions. In the district heating public company, the project leader and the shop steward were in favour of supplementing the yearly employee consultations with such learning sessions that had been carried out in the development project, because it would give the employee consultations a qualitative lift if the employee could get a qualified insight in the future prospects of the workplace and together with their colleagues could relate to their own future in the workplace. Anyway, there is certainly a risk that it remains this one time: A manager clearly expressed that it had been very exiting to try this form of learning, but that the assessment of how he performed, was not based on spending time on this kind of activities, but on how many installations faults were prevented, how well the installations were projected, etc. The old production logic will probably unaffectedly go on.

As a follow-up on the history workshop in the waste disposal utility company, together with the experienced boiler-men we examined how their training by an experienced employee of the person sitting next to him did in fact function. The history workshop dealing with the history of the company had clearly shown that learning was essential for the company. For the boiler-men, training from experienced colleagues had through all the years taken place spontaneously, situated when a deviation from the normal situation occurred. The experienced boiler-man shows what to do, and there is a dominant verbal culture without tradition for written procedures. How is it possible, however, to ensure that new colleagues learn about dangerous situations when very soon the old colleagues will leave the company? This dilemma was further examined through dialogues between the boiler-men and my Kubix colleagues. These dialogues resulted in a beginning writing down on paper how to act in dangerous, acute situations in order to establish a basis for

talking between expert and novice (Dreyfus & Dreyfus 1991) about dangerous situations, situations which are impossible to simulate, but decisive to tackle.

In the district water utility company, a plan was made already during the evaluation of the history workshop on the environmental implications. The plan stipulated a more systematic collection of experiences and a jointly discussion and implementation of these experiences of how the employees in the department had tackled specific situations. The actual daily morning meeting should be expanded and become a new kind of orchestrated learning.

Conclusion

Orchestrated workplace learning can take many forms and be established everywhere, for instance when newcomers are shown around at the workplace, when after-work meetings are held in the last working hours of the week, when the super user is instructing in the use of the intranet, etc. Often these types of orchestrated learning sessions are embedded in the production logic with the matching adaptive learning.

In this paper it is shown that orchestrated workplace learning can be useful in attempts to promote development oriented learning. As the experiences from the development project that forms the empirical basis for this paper, shows, orchestrated learning under favourable conditions in the learning space of the workplaces carefully used, balancing formality and informality, can imply developmental learning for both the employees and the company and be a necessary and rewarding element when the development logic thrives in breaks with and interplay with the everyday production logic.

A final recipe for the perfect way to design orchestrated workplace learning is not given. However it seems to be very likely that the character of the organisational learning space has a great deal to say with regard to what kind of orchestrated learning is promising. It seems very plausible as well that the search of balances and synergies between formal and informal attributes should be part of the designing process of every kind of orchestrated workplace learning.

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