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Language Is not Enough – Knowledge Perspectives on Work-Based Learning in Global Organisations

Abstract

In many larger organisations, increased globalisation has made more acute the need for a continuing competence development of employees, collaborators and customers. For logistic and financial reasons, companies such as Danfoss A/S and Danske Bank have chosen to deliver many of their competence development courses in a purely virtual setting, utilizing various synchronous and asynchronous ICT-tools. The aim of this article is to present a view of competence as ‘knowledge in practice’ and explore the pedagogical implications of this view for such ICT-based competence development. The ‘knowledge in practice’ of the competent employee, it is argued, is a unity of linguistically expressible and tacit (experiential and practical) aspects. The article discusses how competence development courses can be designed as work-based blended learning in order to at once support practitioners in invoking the tacit dimensions of their knowledge and in innovating the practices from which these tacit dimensions stem. A concrete example of a course design which meets these requirements is presented. The example concerns a case study conducted by C. Kjær at Danfoss in its global educational unit Danfoss Refrigeration & Air Condition Academy (Danfoss RA Web Academy).

1. Introduction

For many larger organisations, increased globalisation means that employees, collaborators and customers are dispersed throughout the world. This accentuates the need for a focus within the organisation on the continuing competence development of people from all three groups, in order to make it possible for them to interact competently in unfamiliar local or globally distributed settings. At the same time, it poses new challenges for this competence development, on the one hand

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in terms of logistics and finances, and on the other hand with respect to communication- and learning-centred issues, such as a) the range of subject matters relevantly drawn into the competence development, b) the teaching practices used, and c) the cultural diversity between learners and between learners and instructors or training managers.

To meet the first two types of challenges, in particular, global organisations such as the Danish companies Danfoss A/S and Danske Bank have chosen to base many of their competence development courses on the use of information and communication technologies (ICT). At Danfoss, courses span a wide range of subject matters, from technical issues over sales techniques to English as a second language. The courses are delivered in a purely virtual setting, utilizing a live on-line communication and learning platform like Interwise¹ (see figure 1) which presents several different audiovisual communication possibilities². Such platforms typically allow participants to talk together about e.g. the content of PowerPoint presentations or word documents and in addition allow them to edit the same online document. Viewed from a communication and learning perspective, this kind of platform acts as a mediating tool (Vygotsky 1978; Säljö 2000; Wertsch 1998) between local course participants and instructors (experts), who have the role of representing the company globally, though they of course will also be situated locally, in headquarters or elsewhere (Goodyear et al. 2004; Dirckinck-Holmfeldt et al. 2009).

1 www.interwise.com

2 During the four years 2002-2005, Danfoss held 11,500 e-learning sessions and 89,000 meetings on Interwise, spending a total of 5.5 million minutes on-line (personal communication with a representative of the Danish Interwise distributor, Futurecom). At Danske Bank, an average of 2800 persons participated in on-line meetings every month of 2007. <http://www.danskebank.com/da-dk/CSR/miljoe/miljoeinitiativer/Pages/eMoeder.aspx>

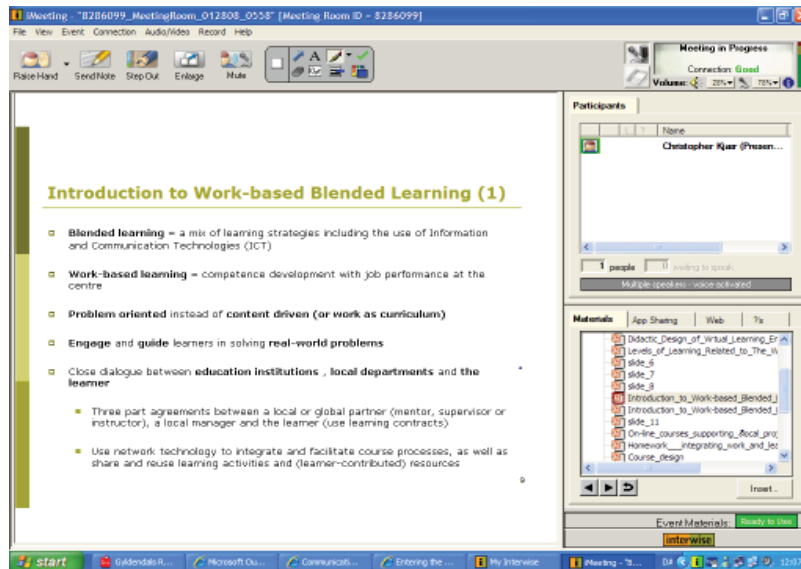


Figure 1. Screen shot of the Interwise learning and communication platform showing the interface in presentation mode with a PowerPoint pane, a list of participants and PowerPoint event material. Above the PowerPoint pane you see functionalities like “Raise Hand”, “Send Notes”, and some whiteboard tools which often are used to support the interaction between participants and instructor

In practice, courses utilizing such on-line communication systems are often conducted as a series of virtual lessons in which instructors present ‘course material’ orally with the aid of PowerPoint slides, allowing learners to interrupt with questions and perhaps leaving some time for discussion between participants towards the end of a lesson. On the one hand, such teaching practice builds upon an implicit conception of knowledge as linguistically expressible information, which can be acquired in one setting and then be transferred and used in another setting without any major problems. On the other hand, such practice is sustained and promoted by the very technology itself: On-line communication systems are designed to facilitate oral linguistic communication, aided by visual inputs in the form of for example PowerPoint slides, and therefore their use in itself leads to a focus on linguistic pres-

entation of 'course material' and a corresponding neglect of possible other aspects of knowledge.

However, if the overall objective of a course is that the participants develop their competence in relation to their daily work, one needs to take a perspective on knowledge and learning that goes beyond this conception. As documented by numerous studies, most notably Schön (1983), Lave (1988), Lave/Wenger (1991) and Wenger (1998) and given further empirical support by e.g. Andersen (1996), Aarkrog (2003) and FitzSimons/Wedeg (2004), and as argued more theoretically by Dreyfus/Dreyfus (1986), Wackerhausen (1991), and Dohn (2005a), putting linguistically expressible information from a course setting to practical use is no simple matter of transfer. Instead, it involves a profound transformation of the 'information-as-situated-and-used-in-the-course' to 'information-as-situated-and-usable-in-practice'.

Inspired by the cited empirical and theoretical research, we are going to argue for a different conception of knowledge and learning, according to which the 'knowledge in practice' of competent employees, collaborators, and customers is a unity of linguistically expressible and tacit (experiential and practical) aspects. The aim of the article is to explore the pedagogical implications of this alternative view for the design of learning possibilities in global organisations. More specifically, the question will be asked how course designers can at once support practitioners in invoking the tacit dimensions of their knowledge and in innovating the practices from which these tacit dimensions stem. We will present a concrete case as one example of a course design which meets the requirements of the implications and thus goes a long way towards giving a practical answer to the question. The focus of the case study, as of this article, is not the linguistic interaction of the course sessions as such. Instead, our primary concern is the wider question of how to design courses that enhance the possibilities for participants to transform the information presented linguistically in course settings into usable knowledge in practice.

To anchor the presentation of our theoretical approach within the field of competence development in global organisations, we describe the case first. This order of presentation allows us to draw on the case for illustrative purposes in introducing the theory and at the same time stages the theoretical sections as the epistemological and learning theo-

retical justification for the pedagogical design of the course. Following the case study, there will be three theoretical sections which elaborate on the issues of 'knowledge in practice', communicating about 'knowledge in practice', and the pedagogical implications hereof. The article concludes with a summary of the main results in a bulleted list.

2. Case: Designing on-line courses for supporting local project work

The case study presented here was conducted by C. Kjær in the Danish company Danfoss, more specifically in its global educational unit Danfoss Refrigeration & Air Condition Academy, Danfoss RA Web Academy³. The Web Academy is a virtual platform on which Danfoss employees worldwide can sign up for different kinds of on-line courses combining asynchronous and synchronous activities, the latter using the system Interwise. Danfoss was selected for the study because it was one of the first Danish companies to use online web conferencing for education and training worldwide and so to have experience in online web-based training at the time (2003).

The course was selected for investigation as part of an action research project inspired by Co-generative Action Research (Greenwood and Levin 1998). A central aspect of this approach to action research is its emphasis on development of both theory and practice in a collaboration between researcher and practitioners. In practice, the collaboration took place in several steps. First, the researcher and the instructors of the course discussed pedagogical approaches to work-based blended learning, on the basis of a presentation made by the researcher. Afterwards, during the course period, sessions were held where the researcher's theoretical perspectives and empirical findings from classroom observation were discussed with the instructors in order to fine-tune the learning activities and to develop new and better models of work-based blended learning. The researcher's role was therefore to support the company's development and interpretations of work-based blended learning activities using the web conference system, and on this basis develop a theoretical understanding of such learning activities (Kjær 2006). As one of the instructors was located in Switzerland part of the

³ <http://www.ra-webacademy.com/>

interaction between the researcher and the instructors took place as virtual meetings on Interwise.

The course was targeted at sales technicians and engineers and was about frequency converters for saving energy in cooling systems. Because this subject requires experts in both frequency converters and cooling systems, Danfoss instructors from both areas were involved as teachers. Knowledge from two company divisions therefore needed to be integrated. Due to the large number of participants, two identical courses (A and B) were held by (in total) four teachers. Course A had eleven participants coming mainly from Australia, Japan, Thailand and Germany. In course B there were seven participants from Ireland, Great Britain, The Netherlands, France, Singapore and Belgium. Nearly all participants had at least five years of experience in working for Danfoss as sales technicians or technical engineers. As the company language at Danfoss is English, the course was held in English.

The course had two main subject areas: the technical features of the converters, including their advantages in saving energy with respect to larger cooling systems; and the sales of these converters. The course was designed in a way which aimed at integrating the synchronous on-line sessions with local project work carried out by the participants. This design is in accordance with the principles of *problem-oriented project pedagogy* (Illeris 2004; Dirckinck-Holmfeld 2002), which emphasise the importance of problem orientation and participant direction. The point of the former is to support the participants in developing competence in identifying and delimiting problems of relevance (to the employee, to the customer, and/or to the company) in a given situation as well as competence in dealing with and solving such problems. The development of these competences is further advanced by the principle of participant direction, which aims at heightening the motivation of the participants by letting them direct their learning as much as possible in the given circumstances.

The course participants therefore not only worked with predefined problems but also with the definition of authentic work problems which they found meaningful in relation to their actual jobs. In this way, the principles of problem orientation and participant direction were invoked to increase the possibilities experienced by the sales technicians of situating the on-line course content in their own workplace realities.

At the same time, since the global on-line course was used in part to present and discuss the work problems and projects of the participants, they were supported in developing a shared content repertoire. This at once introduced a degree of participant direction into the synchronous session itself and further empowered the participants with resources for directing their own learning in their local project work. Both aspects helped to supply the participants with concrete possibilities of integrating their work with learning. The data from the case study suggest that this had a motivating influence on the learning and competence development of the participants.

Elaborating a bit more on the details, we note that the course consisted of a series of six synchronous on-line sessions on the virtual learning and communications system (one session per week), in combination with homework in the form of the parallel project work. The synchronous on-line sessions and the asynchronous possibilities of the Web Academy were to provide the participants with both relevant information about products and feedback on the local project work. The participants worked in local project groups of two.

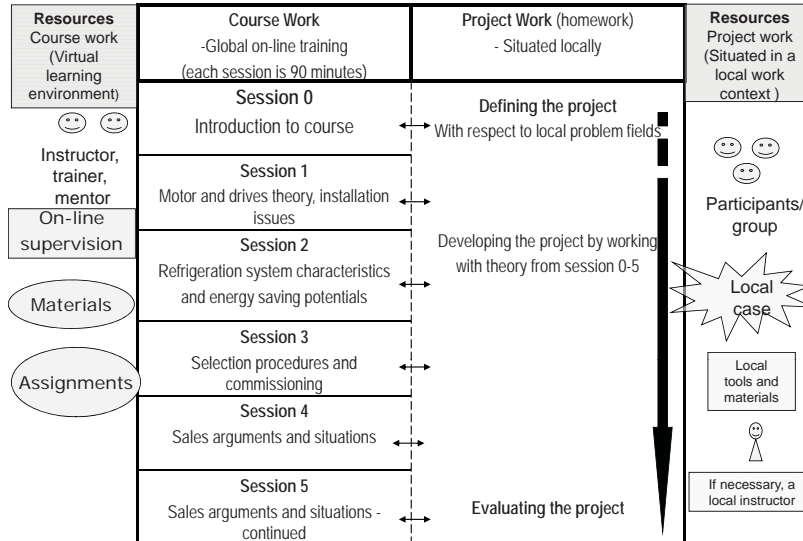


Figure 2. The structure and content of the course. Figure adapted from Dirckinck-Holmfeld (2002)

As represented in figure 2, the primary subject of each on-line session was expert knowledge about frequency converters. However, time was also allocated to discussion to facilitate collective reflection on the local projects of the participants. In practice, each on-line session began with a short discussion of questions and experiences presented by the participants. Then followed a more traditional on-line lecture. Regarding the project work, the most important phase was the first step where the participants had to identify a relevant authentic work-based problem as focal point for their project activities. The requirements for the work-based problem were that it had to 1) arise from the work of the participants, 2) be experienced as meaningful by them, and 3) be within the given course frame. As the main objective of the course was to support sales technicians in learning about frequency converters and their sales, the overall frame for the project work was – step by step – to develop a personalized product presentation, attuned to the local context and the specific job tasks of the participant. To assist the participants in their work with the different steps of the project, the instructors supplied continuous feedback on the asynchronous platform of the Web Academy. Further, each on-line session was strongly correlated, thematically speaking, to the current stage of the project: At each stage, the expert knowledge concerning specific product features and the sales of frequency converters necessary for the next phase of the project work would be given just before this phase was entered. In addition, each on-line session was recorded and saved such that participants could revisit the sessions, including the PowerPoint slides and the oral communication. This possibility was used by all participants.

Methodologically, the case study was conducted as a triangulation of questionnaires, classroom observation and semi-structured qualitative research interviews (Kvale 1996) with the course participants. Classroom observation took place as participant observation during the on-line sessions on Interwise. These online sessions were also recorded for later analysis. The classroom observation and questionnaires were used to design the interview guide as part of the triangulation. All interviews were conducted on Interwise because of the geographical dispersion and as all informants were comfortable with the platform. In practice, it was only possible to interview six informants out of the 18 participants. One of the informants did not complete the course. The other five were all native English speakers. For this reason, the study does not focus on

primary versus secondary language issues in connection with the on-line sessions.

The data collected provide evidence that four different virtual and local learning arenas were important for the learning processes (Kjær, in prep.).

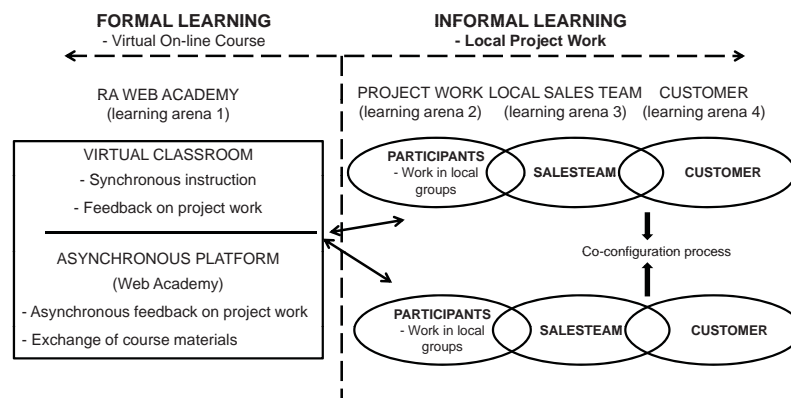


Figure 3. Learning arenas in the Danfoss case

In figure 3, the part to the left of the dotted line, learning arena 1, depicts the formalized learning environment consisting of the synchronous on-line sessions in the virtual classroom and the asynchronous feedback on the project work. In this learning arena, the main goal was to provide course participants with the relevant explicit knowledge. The focus therefore was on the chosen course curriculum and on the instructor as an expert. On the right hand side of the dotted line, the ellipses depict the work of the course participants in their local project groups (arena 2), in their sales teams within their respective companies (arena 3), and finally in their negotiations with their costumers (arena 4). The learning activities and learning processes taking place here are of a more informal kind because they come about as integral parts of the authentic work tasks of the participants, instead of being deliberately constructed by the course instructor. Their occurrence is, of course, to some extent indirectly designed *for* (Dirckinck-Holmfeld et al. 2009) through the overall project work frame of the course, but the learning situations themselves are 'out of reach' of the instructor. As described in more de-

tail in the following sections, there are several advantages in combining the principles of *problem-oriented project pedagogy* with more traditional on-line courses. First, and above all, personal experiences and practical knowledge gained from working with the local project make up an important tacit resonance field, which gives meaning to the explicit (linguistically expressed) knowledge mediated by the global formalized on-line sessions. Second, the global on-line part of the course on the other hand allows a joint reflection to evolve on the local projects and their settings – a reflection, which involves both experts and course participants. The importance of this joint reflection between experts and participants is further stressed by Svensson et al. (2004), who argue for an even stronger claim than the one presented here, namely that the introduction of explicit expert knowledge into the joint reflection is what makes it possible for the participants to identify and interpret their experiences (e.g. the results of work actions).

Summing up, the learning activities of the participants consist of combinations of global web-based activities and the participation in local physical work settings. Through the latter, the participants build up authentic work experiences centred around working with frequency converters in sales situations. These experiences are then discussed and reflected upon, practically and theoretically, in the different learning arenas. For this reason, the learning is best viewed as taking place not only *in* the different arenas, but as much in the *traversing of* the arenas by the participant. As will be elaborated in more detail below, this has important consequences for the learning and competence development of the participants.

Before proceeding, however, a few comments are appropriate to clarify the perspective from which the case study is approached within the rest of this article: One way of viewing the pedagogical design presented above with its combination of global and local work-based learning activities would be from a socio-political angle, focusing on the global democratic and participant-empowering aspects involved in structuring a course around the experiences and problems that participants have in their actual work. Such a view would be in line with the approach to globalisation and team-based knowledge creation taken by Bohman (2004). Our approach, however, though not unappreciative of the points of Bohman, does not centre on problems of empowerment. Instead, its emphasis is on epistemological and communication theo-

retical issues, asking primarily what knowledge is, how communicated knowledge is understood by the person communicated to and which implications the answers to these questions have for the potential necessity of involving the practice-based knowledge of the participants in a course. The fundamental point here is that knowledge involves tacit dimensions and that for teaching and learning to succeed, the participant must be able to bring these tacit dimensions into play with the explicit knowledge of the course.

3. Knowledge as 'knowledge in practice'

In the context of competence development in organisations, the general philosophical question of 'what knowledge is' can be narrowed down to "What characterizes the knowledge that a person has or exercises in practice? Which dimensions are in play and how do these dimensions interact in constituting the person's knowledge?". The claim of this article, following Dohn (2000, 2005a, and 2008)⁴, is that 'knowledge in practice' involves three interdependent, but analytically distinguishable, aspects: linguistically expressible knowledge ('know that'), practical knowledge ('know how'/skill), and personal experience ('know of'). Examples of the first kind would be the knowledge that "the AC voltage in Europe is 220-240V", that "Eastern Japan has an AC frequency of 50 Hz, whereas Western Japan has an AC frequency of 60 Hz", and that "Canberra is the capitol of Australia". Practical knowledge would include the skill of mounting a frequency converter, of using the functionalities of an ICT system in communication, and of being able to fine-tune one's choice of words and tone of voice to the mood of one's conversation partner. 'Personal experience' refers to 'knowledge by acquaintance' (Russell, n.y.) (*i.e.* 'by having experienced it oneself') and ranges from relatively simple examples like knowing what the colour 'mauve' or a frequency converter looks like, to more complex 'life experiences' like 'knowing what it feels like to lose an order you have been working to get for half a year'. The three aspects mutually acquire meaning from each other. The practical knowledge and personal experience constituting a tacit resonance field of meaning which is activated

⁴ The cited texts develop the much stronger claim that the characterization to be given of 'knowledge in practice' as an action-oriented perspective describes the ontology of human knowledge in general (Dohn 2000, 2005a, and 2008).

– set resounding – in the understanding of the linguistically expressible knowledge, thereby supplying it with a fuller, richer meaning. And this linguistically expressible knowledge, in turn, supplies focal points and structure to the practical and experiential aspects, thereby opening the possibility of further interpretation, (re)direction and transformation of them (cf. Polanyi 1962; Wackerhausen 1991; Molander 1996; Josefson 1991; Dohn 2005a and 2008). Importantly, the three aspects are not different *forms* of knowledge existing independently of each other, subsequently being ‘combined’ to make up a synthesis (Gullers 1988). Instead, they intrinsically depend on each other as aspects of a holistic unity. This unity, furthermore, forms an action-oriented perspective (Merleau-Ponty 1962; Dreyfus 1979; Josefson 1988; Dohn 2005a) on the situation, allowing relevant aspects to present themselves, not primarily as ‘to be contemplated and reflected upon’, but as ‘to be acted upon’. ‘Knowledge in practice’, therefore, is a perspective with which the agent meets the world and through which the world makes sense to him.

To elucidate this view of knowledge and illustrate its reasonableness, it may be helpful to consider the ‘knowledge in practice’ of the sales technicians in the Danfoss case in more detail. It should, however, be emphasized that the analysis given here is an ideal analysis in the sense that it is an investigation of what is involved in the ‘knowledge in practice’ of the expert sales technician. No claim is made that the actual sales technicians participating in the course at Danfoss were in fact experts. Rather, the claim is that 1) to the extent that actual sales technicians are able to act adequately, this is due to their knowledge being a ‘knowledge in practice’ involving the dimensions and fields set out in the text, and 2) ‘knowledge in practice’ is the goal for sales technicians in the long run, and a sales course should make as adequate a contribution to this goal as possible⁵.

What then is involved when the sales technician masters the negotiation process of selling a product like the frequency converter? Knowledge is required within a range of fields, including a) the technical features of the frequency converter and of other Danfoss components and the possibilities of and limitations to their customization; b) the culture

5 For a general ideal analysis of expert knowledge along similar lines, cf. Dreyfus/Dreyfus, 1986.

and organisation of the customer; c) attunement of one's sayings and doings to different personalities; d) sales technique and 'sales tricks'; e) technical, economical, and/or organisational problems typically encountered when introducing the converter (or other components) into different existing technical systems. In all fields, some of the knowledge required will be linguistically expressed or expressible, like technical specifications, the laws of electricity, 'rules of thumb' regarding differences between the culture of the customer and of the sales technician; and propositions of sales technique and service. Importantly, however, much of the knowledge within all areas will be 'practical knowledge' and 'personal experience': Within the technical area, experience is necessary, banally, of what electrical installations look like in the country in question, and, not so banally, of specific examples of how such installations are set up and how unwanted 'noise' (electrical interference) can be overcome in a way that is economically and technically feasible in the concrete situation. The latter, of course, includes 'know how' as well as 'know of'. In a similar vein, propositions of sales technique may be helpful in focusing on how to initiate negotiations with a potential customer, and explicit knowledge of the culture of the latter likewise supports the sales technician in his/her approach. Nonetheless, as supported by the detailed analytical description of an empirical sales meeting supplied by Ludvigsen et al. (2003), the expert sales technician's communicative skills far surpass such linguistically expressible knowledge: The 'tuning in on' the personality, cultural expectations, organisational commitment, and actual business-related needs of the other person is much too immediate, flexible, and situation specific to be captured in general rules or 'rules of thumb'⁶. Quite the contrary, the 'rules of thumb' and other explicit knowledge within this field acquire specific semantic meaning for the sales technician precisely through his/her personal experience with and practical knowledge of 'how to go about' the negotiation with concrete customers from other cultures.

Empirically, this claim is given further support through a study by Østerlund (1999). This study reports differences in the performance of sales apprentices concerning the utilization of the explicit knowledge

⁶ For more elaborate critiques of the idea that skilful behaviour can be given a complete specification in rules, see Dreyfus (1979) and Dreyfus/Dreyfus (1986), Wackerhausen (1991), and Dohn (2005a).

of their common sales course. These differences, Østerlund argues, are due to differences in familiarity with the settings (and in some cases familiarity with particular persons within those settings) in which the sales are to be conducted. From the point of view of this article, what such 'familiarity' supplies is precisely a certain degree of experiential and practical knowledge with which the apprentice can make concrete sense of the linguistically expressed course knowledge in the specific settings.

Equally important, to comprehend the performance of for example the sales technicians reported in Ludvigsen et al. (2003), the knowledge of the sales technician cannot consistently be viewed as compartmentalized into diverse areas and dimensions (explicit or tacit), as the above might indicate. More appropriately, it must be viewed as a unified whole which actualises itself as a concrete structuring of the situation in terms of the interrelated relevance of all involved areas (cf. Heidegger 1986; Merleau-Ponty 1962; Dohn 2005a). In other words, the sales technician's 'knowledge in practice' should be viewed as a perspective which lets the situation present itself 'to be acted upon' in a way that is immediately technically, socially, culturally and organisationally adequate. And this perspective, further, lets the knowledge itself actualise for the sales technician in each situation as structured by it, so that the technical expertise, sales know how, cultural experience etc. s/he makes use of have taken concrete, interrelated form by the demands and possibilities of the situation. This, we would claim, is precisely what happens for one apprentice in the study by Østerlund (1999) due to his familiarity with the sales settings. And it is one of the strengths of the pedagogical design presented in the Danfoss case that it allows the participants to articulate the linguistically expressible knowledge of the course in relation to the concrete local work problems of the projects, thereby facilitating an integrated development of both the tacit and explicit dimensions of knowledge.

4. Communicating about 'knowledge in practice'

Given this view of 'knowledge in practice', stressing the semantic role of tacit knowledge in understanding linguistically expressible knowledge, an obvious question becomes what is involved in communication about knowledge, or, in a stronger formulation, whether communica-

tion about 'knowledge in practice' is possible at all. The general answer to this question is that when we communicate with others, the tacit field of meaning constituted by our personal experiences and practical knowledge is set resonating by the words uttered by the others, supplying these words with depth and fullness not present in them by themselves (Molander 1996; Josefson 1998; Dohn 2000 and 2005a). This is so from the banal case of words denoting sensory qualities like 'the sound of an oboe' to complex, many-faceted areas of great personal importance like living through a divorce or learning to cope with a diagnose of lethal illness. Extrapolating to the present context, when one sales technician talks about his sales presentation with another, both will be drawing upon their personal experience and practical knowledge in their understanding of the presentation as a concrete solution to a complex technically, personally, and socially constituted problem in a specific cultural, organisational business-related setting.

Furthermore, when 'knowledge in practice' structures what presents itself as relevant in the situation and when the tacit dimensions are part of the perspective, the form and linguistic content of an actual conversation will depend on the tacit semantic content of the conversation partners. More specifically, it will depend on the degree to which the conversation partners have – and allow – similar tacit semantic content to resonate in their understanding of what the other person is saying. This philosophical point manifests itself in practice in the well-known everyday phenomenological experience of the difference between 'deep' and 'shallow' conversations: The lack of resonance of someone who has no personal experience within the domain talked about shows up as a very superficial understanding of this domain; an understanding, which is furthermore focused on the reproduction of what others have said rather than on the 'bringing into play' of new meaning to which the person is committed him-/herself. For the same reason, explaining a professional point to a non-professional can be near-impossible, no matter how many words are used, because the non-professional simply does not have the relevant field of experience and practical knowledge to 'make sense of the words' (Polanyi 1962; Josefson 1991; Molander 1996; Benner 1984). On the other hand, when conversation partners both have an extensive tacit resonance field to draw upon, subtle and deep points (not understandable to an outsider) can often be expressed between them with very few words indeed (Josefson 1991; Molander

1996). From this point of view, the purpose of providing opportunities for 'joint reflection' on the local projects in the Danfoss case is precisely to make possible such 'resonance-deep' conversations between course participants, enabling them to 'share experiences' (as the expression goes) and thereby qualify their work.

At this point, a possible objection presents itself: If tacit dimensions of experience and 'know how' are an essential part of our 'deep' understanding of the utterances of others and in particular of explicitly formulated knowledge, how *can* we 'share experiences' at all? Are we not forced to the opposite conclusion that each of us attaches a different meaning to the same words so that any phenomenological experience of having had a 'deep' conversation is an illusion; that the best we can ever hope for – and what we should aim at – is the 'superficial' understanding at the common linguistic level? That, however, is not necessarily the case: As argued elsewhere (Dohn 2005a and 2005b) and as corroborated by the studies of Benner (1984) and Josefson (1991), 'deep' conversations require that we have *a sufficient degree of similar* tacit knowledge to draw upon; they do not require that we have an *identical* (whatever that might mean) tacit field of resonance. Often we can make ourselves understood by relating to like experiences, even if we cannot 'put the experiences themselves into words' (as we say). To the person who does not know the sound of an oboe we might say that it sounds 'something like a duck'. Importantly, when we are doing so, we are drawing on the tacit semantic content of these 'like experiences' (the quack of the duck) – not doing without the tacit dimensions altogether. For the person born deaf the explication just given supplies no new meaning to the phrase 'sound of an oboe'. Now, what a 'sufficient degree of similar tacit knowledge' is cannot be identified once and for all; it depends on the subject matter itself, its relatedness to other subject matters, and most probably also on the situation and the person involved. Blatantly, some people seem better than others at 'extrapolating' from their own experiences to those of their fellow men. The analytical point here is, firstly, that for each person there will be a (personal, situationally specific) limit to what s/he can understand without experience and 'know how' within the field, and secondly, that, in general, the more alike our tacit fields of resonance are, the better we understand each other.

Summing up, in general language is not enough for adequate communication about ‘knowledge in practice’. Such communication requires that conversation partners have sufficiently similar resonance fields of meaning to draw upon. *When* they have this, however, it is possible for them to use language to focus on central aspects of their ‘knowledge in practice’ (Benner 1984; Molander 1996), reflecting on similarities and differences in how they see and act in certain situations. This way language can be used to structure and further interpret as well as to question the experiential and practical aspects of ‘knowledge in practice’, with the aim of further improving the practitioner’s competence.

5. Pedagogical implications for competence development in global organisations

The view of ‘knowledge in practice’ presented in the last sections has pedagogical implications for competence development in global organisations. The aim of this section – as of the article – is to present these implications. This will be done through a discussion of other approaches to work-based learning in order to pinpoint differences and thus develop our view with greater clarity.

Given the focus on practical and experiential dimensions, on the face of it it might seem that the best way to structure competence development would be as ‘learning by doing’, *i.e.* simply as active participation *in* the practice concerned, or, alternatively, following the Australian workplace researcher S. Billett, as ‘guided learning’ (Billett 2001). In the latter approach a mentor/supervisor helps the practitioner to focus on specific areas where progress is needed. ‘Learning by doing’ or ‘guided learning’, it would seem, would supply the practitioner with a maximum of possibilities for acquiring personal experience and practical knowledge within the field and, when combined with the mentor’s linguistically formulated comments, also a maximum of possibilities for reflecting upon issues of relevance in this particular setting, including the significance and adequacy of the tacit dimensions of his/her ‘knowledge in practice’. In the case of the sales technicians, it would consequently seem that actually being involved in sales negotiations with customers, perhaps under supervision of a more experienced sales technician, would be the best way to improve one’s competence within the field.

These approaches to competence development definitely have their merits, since the immediate degree of relevance for practice of what is learned in general will be very high. However, as Billett also points out, practice-centred approaches have their drawbacks as well, not only in terms of finances and resources, but also pedagogically and learning theoretically speaking. As regards the former, a mentor has to be very competent within the given field and depending on the field and the size of the local branch of the organisation, there may very well not *be* anyone locally who can act as a mentor. In such situations, it may not be feasible, neither in terms of finances nor in terms of actual staff in the organisation (viewed globally), to supply a mentor to every practitioner in need of competence development within the area. Even if it *were* possible, there would still be drawbacks from the viewpoint of learning and knowledge: Confining oneself to the setting of the actual practice obviously restricts the learning opportunities to those presented *in* this practice. This means, firstly, that the practitioner may never become acquainted with facts or skills which potentially might be relevant for his/her agency in the practice, because the opportunity never arose. Secondly, related to the first, there is a risk that non-optimal routines or unjustified ways of acting will never be recognised, partly because no comparison with other practices is provided, and partly because routines can to some extent be self-reinforcing. One example of this would be a sales technician acting on the assumption that young representatives of a company are easier to convince of a sale than older ones. This would presumably lead him/her to approach only the former. In this case, his/her results, if good, will reinforce the assumption and the related behaviour, whether the assumption is true or not (cf. Bateson 1972). Thirdly, since the actual access to learning for the practitioner will be conditioned by the overall purpose of the practice, which in general will be the attainment of some result, e.g. sales, specific learning opportunities may be rejected on beforehand, no matter what their learning potential, if they are judged to jeopardise the overall purpose. Bringing a supervisor as an observer to a sales negotiation with a customer or videotaping the session with the aim of getting material for reflection on one's sales techniques might be cases in question. Though such approaches evidently carry a learning potential, they might be considered to disturb both the customer and the sales technician too much for the negotiation to succeed. These theoretical considerations are backed by

Billett (2001). His empirical findings show that guided learning on the job is very sensitive to the work context, specifically to the learning opportunities it supplies and the support it gives to learning activities. Billett's research further shows pitfalls concerning the learning of inappropriate knowledge and limited development of a conceptual understanding of the vocational expertise on the part of the learner.

For reasons such as these, pure 'learning by doing' or 'guided learning' cannot in general be expected to be sufficient to ensure competence development. The traditional alternative, providing employees with a 'stand-alone' course on e.g. 'sales technique', however, does not focus on developing the 'knowledge in practice' of the practitioners, but rather supplies linguistically expressed knowledge, possibly supplemented by small-scale exercises (to be completed within minutes or hours at most), which *ipso facto* do not possess the inter-related details and commitments of real life situations (cf. Lave 1988). In consequence, such courses – including the exercises – are often experienced as rather 'peripheral' and 'hard to translate into one's own practice'. In the worst cases, these types of pedagogical design, by not supplying an anchorage in the work practice of the participants, in effect render it impossible for the participants to transfer the linguistically expressed knowledge of the course setting into their work practices (Andersen et al. 1996; Aarkrog 2003). As seen from the view of knowledge, communication, and learning presented here, the problem with such courses is that they neglect the tacit dimensions of 'knowledge in practice' and focus only on linguistically expressible knowledge, illustrated in practice through non-realistic exercises. More specifically, such courses neither aid the participants in invoking their existing tacit resonance field of meaning in the understanding of the course content, nor facilitate their development of this tacit resonance field in ways relevant for their practice.

In the context of global organisations, this problem is accentuated by the fact that local cultural and organisational circumstances will be very different across different branches of the organisation, making even wider the gap between the experiential and practical aspects of the knowledge of the participants, individually in relation to the instructor as well as between themselves, if courses are held on a global scale. Such gaps will make it even harder for participants to bring their tacit dimensions into play and develop them through acquaintance with the course content. Added to this is the problem that, when pressed for

time, participants in courses that do not have an anchorage in their actual work, will tend to give priority to the latter instead of engaging wholeheartedly in the issues of the former. This is nicely illustrated by another case study at Danfoss. Here, the instructor presented course participants with a real-life case which, upon close consideration, presented complications that seemed ideal for triggering reflective discussions about the course content. However, even though the case was in one sense 'authentic', for course participants it still represented a hypothetical case, since it was not taken from their actual work situations. In consequence, much to the disappointment of the instructor, the participants solved the case-exercises in a very superficial manner, never discovering the complications it presented (Kjær, in prep).

Based on these considerations of problems related to both 'learning by doing', 'guided learning', and traditional courses, the key issue in facilitation of the practitioner's improvement of his/her 'knowledge in practice' shows up to be: The design of learning possibilities must at once support the participants in invoking and widening their locally situated experiential and practical meaning without which course content appears 'out of touch with reality' *and* supply the opportunities for them to reflect upon, question, transform and innovate the very local practices which give rise to this tacit meaning. In the context of global organisations, the additional requirement is added that the design of 'opportunities for reflecting' take due account of the fact that the organisation *is* a global one. Further, Høyrup and Elkjær have argued that organisational reflection should include reflection at three levels: an individual one, a collective one, and a critical one (Høyrup/Elkjær 2006). We agree that it is necessary to take all these levels into account in the pedagogical design of competence development. However, we would stress that it should be done in a way which ascribes prime importance to the role of the tacit dimensions of knowledge.

Owing to the global nature of the organisation, there may be considerable variations in the tacit resonance fields of employees across the organisation. This, on the one hand, in principle supplies the possibility of a meaning-rich, yet practice questioning reflection between employees from different local branches: The fact that employees work within the same field though in different local settings warrants the supposition that the experiential and practical aspects of their knowledge, despite variations, also have a lot in common. To the extent that this is

true, the variations and the associated differences in their 'knowledge in practice'-perspectives may be invoked in a reflective dialogue that resonates with meaning for all participants. Such a dialogue would potentially challenge local ways of acting and thinking. On the other hand, in practice it will not be easy to establish the dialogue since it is demanding both in terms of time and of personal involvement on the part of the participants. This, of course, must be taken into consideration in the design of 'opportunities for reflection', in that for example the necessary time and space must be provided and the involvement of participants appropriately encouraged.

Another point to take into account when designing 'opportunities for reflecting' in global organisations is the question of commonality. If the organisation is to present itself as credible and not too fragmented, a degree of commonality across the local settings is needed. The definition of this 'commonality', however, to a large extent originates from *one* local setting, namely company headquarters. That it does not easily translate from headquarters to local branches, but will always be mediated locally, if incorporated at all, is in part a consequence of the points argued in this article: Since 'language is not enough', headquarters cannot just say how they want the commonality to be, and even the most compliant of local practitioners must necessarily supply local meaning to the words in order for them to make sense in practice. This is a crucial issue which the 'opportunities for reflecting' should be designed to address.

The specific question of this article was how course designers in a global organisation can at once support practitioners in invoking the tacit dimensions of their knowledge and in innovating the practices from which these tacit dimensions stem. The preceding discussion has shown that one answer to this question lies in providing practitioners with both authentic local and reflective global learning settings and facilitating their movement (both literally and metaphorically speaking) across these settings. Given that the overall aim of this enterprise is the practitioner's improvement of his/her actions in practice, the focus should be on supporting the participants in their integration of explicit and tacit (practical and experiential) knowledge aspects in relation to the local settings where 'knowledge in practice' is exercised. Though not simple to realise in practice, the pedagogical model sketched in the Danfoss case supplies a concrete instance of competence development

along these lines (and therefore also provides existence proof that such competence development is in fact possible): The project work of the participants provides the local anchoring of the linguistically expressed technical and sales-related knowledge presented in the course. And the ICT sessions on the other hand supplies the global setting for the participants' communication about and reflection on the locally produced meaning of their project work experiences.

6. Conclusion

By way of concluding, we wish to summarize our main points. For the sake of clarity we have arranged them in a bulleted list. The main argument has been that

- 'knowledge in practice' is a unity of linguistically expressible knowledge, practical knowledge and personal experience, where the latter two constitute a tacit resonance field of meaning for the former, which in turn supplies focal points to the latter
- when communicating about 'knowledge in practice', one's tacit field of meaning is set resonating by the words of the conversation partner
- therefore people who have sufficiently similar resonance fields of meaning may have 'deep' conversations which resonate for them with tacit meaning

On the basis of this argument, some pedagogical implications for the design of competence development in global organisations have been presented:

- the design for learning must focus on supporting the practitioner in developing both tacit and explicit aspects of knowledge, notably supporting the development of these aspects in integration
- for competence development to succeed, global communication about course content must draw on the participant's existing and emerging local experiential and practical meaning

- on the other hand, global communication about local meaning may be necessary for reflection upon the local practices (from where the meaning stems) to be possible
- in general, understanding and reflection are facilitated by the participation in and the traversal of different learning arenas.

In the design of competence development courses, language is not enough, because the tacit dimensions of the knowledge of the participants must actively be brought into play with the linguistically expressible knowledge of the course, if the latter is to have any importance in the continuing work practice of the practitioners. Put differently, the experience and know how of the participants must be brought *into* the formal settings (ICT-based or physical) of the course, for the words to be able to come *out* of them.

The Danfoss case, with its focus on problem orientation and participant direction, as well as on the integration of local project work with global ICT-based course content, supplies one concrete example of how these requirements can be met in practice.

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