On the necessity of intertwining 'knowledge in practice' in action research

Nina Bonderup Dohn

The aim of this article is to clarify the ontology of knowledge, and to point out methodological implications hereof for action research aimed at action researchers' and practitioners' co-creation of knowledge. The article is motivated by the observation that action research literature tends to either unwittingly subsume all forms of knowledge under propositional knowledge, or alternatively to differentiate knowledge forms to the point of non-relatedness. Knowledge is analysed as an action-oriented perspective: 'knowledge in practice', consisting of a holistic unity of personal experience, practical knowing, and propositional knowledge. The analysis points out a serious quality issue: Intertwining of practitioner and researcher 'knowledge in practice' is necessary to allow adequate development and evaluation of action research projects. Three paradigmatic forms of collaboration are considered: 'division of labour', 'mutual apprenticeship', and 'co-operative inquiry'. 'Mutual apprenticeship' is argued to meet the quality issue best.

Key words: knowledge in practice, action research, co-inquiry, quality, tacit knowledge methodology, epistemology

Vignette

Here we sit again: My fellow action researcher and I together with the three primary participants from the company, i.e. the two IT experts teaching the course that our project focuses on, and a representative from the human resource department. The project is about developing and implementing an e-

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learning course on a new IT-system to be implemented in the company. We have agreed to centre the course on the real life working problems of the course participants, i.e. structure the course content in terms of these problems, and use the e-learning sessions as 'reflective spaces' for discussion. We have been working together for around a year (not counting the half a year we spent getting the project group together), having workshops, doing a pilot study with a prior course, getting to know each other's practices. Today, we are going to discuss some details about the pedagogy of the concrete learning activities in some of the sessions. Or so I thought. But I am to be told differently: One of the participants tells us that they have decided to stop the project, and go back to traditional classroom courses with lectures and exercises. The reasons given are that it will save time and be more manageable for the teacher. End of action research project.

I am frustrated, as is my fellow action researcher. We don't understand: we thought that the whole project group had negotiated a common understanding, based on the discussion of learning and teaching experiences of all the participants, as well as on learning theoretical arguments from the action researchers, that a teacher-centred course removed from practice has less chances of motivating course participants, and has problems of relevance and 'knowledge transfer' as compared to a course taking place in *practice and centring* on *actual problems here. The existence of this common understanding had been corroborated, we thought, during the pilot study and in the course of getting to know each other's practices. We really thought we all 'knew' this. Obviously, time is an important issue for a company, along with other resources, and a course must be 'manageable' for the teacher. I and my fellow action researcher 'know' this (we think). Still, we would argue (we did) that saving time and making it easier for the teacher here and now is of limited value in the long run, if course participants cannot transform course content into useful knowledge in their practice afterwards.*

Somehow communication has broken down. Action researchers and company participants do not seem to be seeing the same scene; we disagree about the way aspects like time, relevance for practice, manageability, learning etc. are interrelated, including in which ways they necessarily structure each other, and in which ways we can influence their structuring

each other. We also disagree on what counts as 'an aspect' and what does not. Is 'ownership over the course for the course participants' an aspect in its own right, or isn't it? Maybe we wouldn't even agree about when course participants have learned what the course intended they learn, partly because we probably, despite all the agreeing on explicitly formulated course objectives, still view this 'what' differently, including being in disagreement on the question whether it 'is' a 'what' at all, or rather is a situated construction transformed in its very use. And partly because we would most likely see the practice of the course participants after the course in incommensurate ways, leading to different answers to the question of whether they 'use what they have learned' afterwards.

1. Introduction – the need for further analysis of forms of knowledge and their relation to each other

I start the article with a vignette. The purpose is to 'set the scene' and offer an illustrative exemplar for the main thrust of the article, which is a theoretical discussion of the importance of tacit dimensions of knowledge, and of the resulting necessity of intertwining researcher and practitioner 'knowledge in practice' in action research. The vignette does *not* constitute an empirical case study in any strict sense: rather it is an example of a breakdown in communication and understanding which I have experienced myself, and which provides a phenomenological basis for the philosophical analysis to be presented. At the same time, as will be argued more extensively below, cases reported in the literature match ours closely, as concerns the problems of communication and understanding and the reasons why they evolved (Olesen & Nordentoft, 2013; Pedersen & Olesen, 2008). This goes to indicate that the empirical base correlating with the philosophical analysis is indeed not negligible.

The claim that tacit dimensions of knowledge are important will probably not initially meet extensive resistance within the field of action research. Seemingly, the view is widely accepted that there are more forms or aspects of knowledge than propositional or representational knowledge. Thus, Heron & Reason e.g. maintain that "the propositional knowledge of academia" in

action research must be extended to encompass three other forms of human knowing, *i.e.* experiential, presentational, and practical knowing (Heron & Reason, 2001, p. 183). Marshall similarly emphasises that she works with "a multi-dimensional frame of knowing; acknowledging and connecting between intellectual, emotional, practical, intuitive, sensory, imaginal and more knowings." (Marshall, 2001, p. 433). Other authors speak of "multiple ways of knowing"(Poonamallee, 2009, p. 71-72), "local situated knowledge" (Genat, 2009, p. 106), "experiential knowledge" (Olesen & Nordentoft, 2013, p. 78; Pedersen & Olesen, 2008, p. 16; Riemann, 2011, p. 274)[1], "context-sensitive knowledge" (Olesen & Nordentoft, 2013, p. 79), "involved" and "personal" knowledge (Johnsen, 2010, p. 70), "embodied" and "practical" knowledge (Pedersen & Olesen, 2008, p. 3, 16, respectively), "knowing engagement" (Schaenen, Kohnen, Flinn, Saul, & Zeni, 2012, p. 80) and "actionable knowledge" (Gustavsen, 2004; Shotter, 2004). More generally, the view of Lewin, accepted by most action researchers, that only through changing an organisation will we come to understand it (Lewin, 1973), arguably implies that involving oneself practically in the world gives another 'deeper' kind of knowledge than the one expressible in words.

However, upon a closer look, few authors expand on what constitutes these different forms of knowledge, on their ontology, 'what they are made up of', and how they are 'had' or 'held' or 'enacted' by knowers. Furthermore, even if they explicitly acknowledge different forms of knowledge, many authors in practice implicitly take for granted that these other forms of knowledge can all be put into words. For example, Pedersen and Olesen argue that "open communication" is necessary if collaboration between participants with their "theoretical, experiential, and practical knowledge" is to succeed (Pedersen & Olesen, 2008, p. 16). Whilst it is hard to disagree that 'open communication' is indeed supportive of collaboration, it is only decisive on the presupposition that the experiential and practical knowledge can be articulated in words *in* the communication. Shotter claims that "withness (dialogic) -talk" (p. 205) in the vein of "1st person tellings" (p. 219) may

[1] Pagenumbers for the article by Pedersen & Olesen refer throughout to the version of the article available through the journal's online publication (accessed through WISO).

"enable… us to enter into another's world, and to get a sense of a 'something' with a *life of its own*" (p. 221, italics in original); because such tellings may "'move' listeners into paying attention to previously unnoticed particularities within the 'world' of the insiders… although the cases described might seem to be utterly unique and particular, they can in their telling give rise, nonetheless, to transferrable or actionable knowledge" (p. 219) (Shotter, 2004). Genat equates "local situated knowledge" with "local theory" (p. 106) established in participant focus group discussions aimed at "foreground[ing] shared local understandings" (p. 101) (Genat, 2009). The "experiential knowledge" emphasized by Riemann and by Olesen and Nordentoft is only made available to them verbally, in the writings of his students in Riemann's case and in dialogue sessions in Olesen's and Nordentoft's (Olesen & Nordentoft, 2013; Riemann, 2011). Neither comment on this point, thereby indicating that they do not see lack of 'direct' non-verbal access to the alleged 'experiential knowledge' as a problem. Johnsen argues that "there are limits to what level of personal knowledge that social science should strive at" because only "part of that knowledge [the knowledge involvement gives us] is relevant outside the lifeworld situation." Further, the part that is relevant is the one that "produces social rather than individual lifeworld knowledge" where "social knowledge has taken the lifeworld knowledge of the other at least one step in direction of structuring, classifying and objectifying"(Johnsen, 2010, p. 70). The implication, it would seem, is that the *social* lifeworld knowledge at least, and thereby what is of scientific significance according to Johnsen, is linguistically expressible, as this is a precondition of the processes of structuring, classifying and objectifying.

In sum, such authors are in different ways effectively treating allegedly different knowledge forms as at least convertible into propositional knowledge. Moreover, the so-converted propositional knowledge is implicitly (or explicitly, Shotter, 2004) supposed to be understandable for all who hear it expressed, no matter whether they held the original non-converted 'other knowledge form' themselves or not. In other words, though non-propositional knowledge forms are explicitly acknowledged, the underlying contradictory premise is that no essential element is lost by converting the non-

propositional forms into propositional ones. In effect, the premise is that all knowledge is fundamentally expressible.

In stark contrast to this tendency to neglect in practice the significance of non-propositional knowledge, a few authors, such as Eikeland and Park, supply elaborate characterisations of different forms of knowledge, described as more or less unrelated to each other. Park, inspired by Habermas, thus distinguishes three forms of knowledge, all pursued in action research, but not reducible to each other: representational, relational, and reflective knowledge, of which only the first is propositional, whereas the second is affective, "we know with feeling, and the knowing is in the feeling" (Park, 2001, p. 85), and the third is "social and dialogic", integrally connected with action (ibid, p. 86). In a recent article, Eikeland, for his part following Aristotle, has distinguished seven different ways of knowing which he claims are relatively distinct and unrelated because they are grounded in different relationships between knower and known, including different ways in which action as means and/or end is of significance to knowing (Eikeland, 2012). He does argue that *one* way of knowing (*praxis*$_1$, 'practice' in English*)* is in a sense basic to the others because each 'way' has its own *habitus* (Bourdieu, 1977, 1990) : its own manner of going about the world and making sense of it, i.e. its own *praxis*$_1$, connected to it and that especially *theoria* (English 'insight'), aimed at articulating the 'grammar' of *praxis*$_1$, only comes about through dialogue about *praxis*$_1$.

In this sense, Eikeland does claim that some kind of one-to-one connection exists between *one* particular way of knowing (*praxis*$_1$) and the other ones. This corresponds to his claim in an earlier article that the outset for the development of propositional knowledge is the "habits, standards of competence, language, tradition, norms and ways of doing-things" (Eikeland, 2006, p. 209), i.e. the practical knowledge and competence we always already have as human beings in a world. I fully agree with this point. However, Eikeland does not expand on *how* propositional knowledge is developed out of *praxis*$_1$, i.e. on the way in which *praxis*$_1$ contributes with meaning to the propositional knowledge. Further, his analysis does not convey any direct connections between the various other ways of knowing than *praxis*$_1$ so that they would all seem to be only related to each other, if at all, through their grounding in

the latter. Moreover, since the relationship between *praxis*$_1$ and the other ways of knowing (apart perhaps from *theoria*) is one of *form* rather than *content:* it concerns the *manner* in which one relates oneself as knower to known, rather than the actual knowing itself , it is hard to see how knowledge created through other ways of knowing might contribute to the content of propositional knowledge for the person in question. It is e.g. hard to see how the experience of hammering might contribute to one's understanding of propositional knowledge about appropriate weight distributions in hammers. In sum, Eikeland's focus (Eikeland, 2012) on distinguishing different ways of knowing, and setting them apart from one another, renders it somewhat obscure how tacit and explicit aspects of knowledge relate for the knower.

In general, characterisations such as Park's and Eikeland's (2012), which are concerned with distinguishing different forms of knowledge may easily mislead readers into thinking that these different forms exist in more or less isolation from one another. This is unfortunate because it suggests a compartmentalisation of knowledge in the 'knower' which, on the face of it, is in poor agreement with our everyday experience as active knowers in the world.

The upshot of this somewhat lengthy introduction is that though there is widespread acceptance of the claim that there exist more knowledge forms than the propositional one, the ontology of the different alleged forms of knowledge and their relationship to one another is at best unclear. The tendencies are to either subsume all forms under the propositional one in actual argumentative practice, or on the contrary to distinguish them so much from one another that they might seem not to be related at all. These tendencies are problematic, not just for philosophical reasons, but because an inadequate understanding of what knowledge is may well result in an inadequate research practice. If the tacit dimensions of knowledge are in practice treated as if they were propositionally expressible, measures will not be taken to ensure that they are investigated *as* tacit dimensions. This is seen clearly in the literature referred to above, where researchers seek to disclose practitioners' experiential and practical knowledge solely through dialogue. If on the other hand, the relationship between different forms of knowledge is disregarded, no measures will be taken to ensure that the researcher seeks to

disclose them in their interrelation: to find out whether and how they might actually supply meaning to one another.

In this article I contribute to the clarification of these issues by providing an analysis of knowledge as an action-oriented perspective, anchored in the practical doings of the agent and significantly involving tacit dimensions. My analysis will show the action-oriented perspective, which I term 'knowledge in practice', to be a holistic unity of propositional, experiential, and practical aspects where the latter two types constitute a tacit resonance field of meaning which supplies semantic content to linguistically articulated knowledge (the propositional aspect). On the basis of my analysis, a serious quality issue shows up as potentially present in very many action research projects concerned with action researchers' and practitioners' co-creation of knowledge: The action researchers actually do not have enough experience-based 'knowledge in practice' within the practical domain of their research, within what I will call the 'action practice' in distinction to the researcher's 'research practice', to understand what they are doing or know what they are saying. There is risk of significant misunderstandings between researcher and practitioner, and there are serious methodological problems concerning the evolvement and evaluation of the action research project. This quality issue at once echoes, aggravates, and provides a slightly different grounding for the validity issue pointed out by Eikeland that "practical personal experience" at the centre of research is necessary to answer Geertz' validity-question: ""*How* can you tell a better account from a worse one"? and "what *basis* do we have for our interpretation"?" (Eikeland, 2006, pp. 210, 203; Geertz, 1973, p. 16, italics in original).

Returning to the vignette in the beginning of the article, it constitutes a concrete problematic case of action research where we as action researchers did not have the necessary 'knowledge in practice' within the action practice, nor did the practitioners have the necessary research 'knowledge in practice'. Of course, not all action research projects fail like ours, nor do all action researchers act and think as naïvely as we (or the caricature presented of us) did; the distribution of research roles between action researchers and company participants may well differ quite substantially from the distribution in other cases, and the mistakes made by project group members on both sides

hopefully are not made in all action research projects. The claim is not that the vignette is representative of action research in general. The claim, however, is that the failure in this concrete case, to a large extent, can be ascribed to problems and tensions that underlie much action research, though fortunately they do not always have as dire consequences. In other words, the case has been chosen because its failure highlights common issues.

The structure of the article is as follows: In the next section I argue for my view of knowledge as 'knowledge in practice'. In section 3, I look at the methodological implications of this view for action research. The point here is that practitioners and researchers at the beginning of an action research project bring very different kinds of 'knowledge in practice' into their collaboration, which, of course, is the very reason for initiating a co-inquiry, but which, if due consideration is not given to the divergent tacit dimensions of the participants' 'knowledge in practice', will result in methodological problems. Different forms of collaboration in action research have different chances of countering these problems. Three different forms of collaboration are considered (section 4): the 'division of labour' approach of for example Genat (Genat, 2009), in which the roles of the action researchers are complementary to the ones of the practitioners; the 'mutual apprenticeship' approach argued for by Eikeland (Eikeland, 2006); and the co-operative inquiry of Heron and Reason (Heron & Reason, 2001). In conclusion (section 5), Eikeland's approach is claimed to be the one that meets the problem of 'knowledge in practice' best, though it has methodological and organisational problems of its own. The case presented in the vignette serves throughout the article to illustrate and elaborate the theoretical points.

2. The 'knowledge in practice' of the practitioner

In this section, I shall present my view of knowledge as a fundamentally tacit and action-oriented perspective, a 'knowledge in practice', which is grounded in our everyday ways of going about the world and each other, but in which propositional knowledge is incorporated as an integral aspect of the perspective. The view is inspired by Wittgenstein, especially in his Scandinavian interpretation (Johannessen, 1988, 1992; Johannessen & Rolf, 1989;

Josefson, 1998; Molander, 1992, 1996; Nordenstam, 1983), as well as by insights from phenomenology, especially Merleau-Ponty and Dreyfus (Dreyfus, 1979; Merleau-Ponty, 1962), and situated learning (Greeno, 1997; Lave, 1988; Lave & Wenger, 1991; Packer, 2001; Packer & Goicoechea, 2000), cf. also (Dohn, 2005, 2011, 2013; Dohn & Kjær, 2009). I shall focus *first* on the characterisation of the 'experiential' and the 'practical' aspects of knowledge as distinct from the propositional one (in order to 'fill in the details' in comparison with the abovementioned literature which ends up unwittingly prioritising propositional knowledge). Here, I shall give a few examples of 'personal experience' (the experiential aspect) and 'practical knowing' (the practical aspect). *Second*, I shall then discuss how they interrelate with each other and with propositional knowledge to form a holistic unity, 'knowledge in practice' (in order not to end up compartmentalising the forms of knowledge).

2.1 The experiential aspect

A simple, first, example of what I term 'personal experience' is Wittgenstein's: "wissen… wie eine Klarinette klingt" (Wittgenstein, 1958, §78). This type of knowledge is a "knowledge by acquaintance" (Russell, 1912), i.e. a form of knowledge which can only be acquired by 'meeting' the phenomena in question directly and thereby experiencing it oneself. Other, equally simple, examples of 'personal experience' are 'knowing what mauve looks like', 'knowing what kangaroo tastes like'. Personal experience is tacit in the sense that one cannot explain e.g. what the clarinet sounds like to someone who has never heard anything like it before. Despite the many categories which Eikeland, following Aristotle, distinguishes, he does not explicitly consider this one. He only indirectly acknowledges it in connection with what he calls *praxis*$_1$ when he talks of "practically acquired *empeiria* (=*Erfahrung* as accumulated practical experience exercised/habituated into us…)"(Eikeland, 2012, p. 24). However, on this rendering no distinction is drawn, as I do, between personal experience and practical knowing (cf. below).

Some philosophers (Block, 1990; Jackson, 1982; Nagel, 1974; Peacocke, 1983) have described this 'what it sounds/feels/looks like' as the 'phenome-

nal quality' of an experience, understood as a specific mental state. They refer to the 'phenomenal quality' with the technical term a *quale* (plural: qualia). There are several problems with this approach to experiential knowledge. For one thing, there is the problem of flexibility: Clarinet sounds vary, and putting experiential knowledge of 'how it sounds' down to one specific mental state does not do justice to our capacity to recognise the sound, despite variations in timbre, pitch, and melody. For another, qualia in the analysis of philosophers tend to fall out as epiphenomena, where the actual causal power is ascribed to the physical state in the brain which causes the quale (the so-called neural correlate of the quale) (Noë & Thompson, 2004). Thirdly, qualia risk discursive epiphenomenality, too, in the way Wittgenstein pointed out in his famous beetle-in-a-box analogy (Wittgenstein, 1958, §293): Subjective mental 'objects', as qualia are most often construed, inherently private, i.e. inaccessible to others, fall out of discourse as something to which we cannot refer and which has no significance. Arguably, these three problems with the qualia-interpretation all stem from the objectification involved in construing experiential knowledge as a mental state.

More promising, I think, is the view that experiential knowledge of a phenomenon is a felt holistic bodily responsiveness to it, a felt responsiveness which may involve one or more mental states but is not reducible to these states, because it is encoded more generally in the body's handling of the situation in which the phenomenon is met. In the words of Dreyfus: "…my memories are inscribed in the things around me… My memories are stored in the familiar look of a chair or the threatening air of a street corner where I was once hurt." (Dreyfus, 1979, p. 266) That this is so is perhaps seen most easily if one considers less simple examples such as 'knowing what it is like to be addicted to smoking', 'knowing what it is like to survive cancer' or 'knowing what it is like to become a mother for the first time'. The experiential knowledge involved in each of these cases cannot be reduced to a simple sum of mental states. In the latter case, for example, the complex mixture of being joyously proud, overwhelmed by responsibility, fatigued beyond sensible thinking, self-sacrificial and yet self-assertive is not just so many different mental states combined. Rather, it is a multifaceted feeling residing

in the body as a whole which, when conjured up at later stages of life, shows itself in remembrance just as much in bodily sensations of e.g. happiness and drowsiness as in mental recollections.

Personal experience, I said, is tacit in the sense that "one cannot explain e.g. what the clarinet sounds like to someone who has never heard anything like it before". However, to someone who *has* heard 'something like it' one *can* to some extent explain the sound by referring to this other phenomenon with which the person is acquainted. One might perhaps explain that the clarinet sounds something like an oboe, but with a more 'barrel-like' timbre, like the oboe would sound if played in a tunnel. The point is that this explanation will only be helpful to the person who knows what the oboe sounds like, and how making a sound in a tunnel changes timbre. It will not give the person who has never heard a musical instrument played, much less the person born deaf, any hint at what to imagine. They will be left *only* with the propositional knowledge that "a clarinet sounds like…", but without any real semantic content to conjure up to fill in the words. And this is precisely because they, for lack of former experience with musical instruments (or sounds at all), lack the bodily responsiveness upon which others draw in their understanding of the propositional knowledge. Similarly, stating that "Mauve is more grey and more blue than a pale tint of magenta would be" (Wikipedia, accessed 30.04.14) is only informative if you know the colours grey, blue, and magenta. To the colour-blind the sentence makes very little concrete sense (though he or she will of course understand the general point of the sentence which is to describe an unknown phenomenon via relating it to known phenomena).

Finally, my description above of the multifaceted experience of 'becoming a mother for the first time' makes much deeper sense to the woman (and man) who has children of her (his) own than to someone without children. As somewhat anecdotal evidence for this claim stands my experience from many years of teaching within the field of 'tacit knowledge': When I tell the students a story about a woman who was set off in a fit of rage by the prospect of losing ten minutes of sleep, students without children find the woman hysterical, they definitely cannot understand her, whereas students (men and women alike) *with* children smile somewhat self-ironically because they

'know exactly how she felt' even if they agree that she overreacted. The very fact that they react so differently show the students that there is indeed a case of tacit, experiential knowledge at play here. In the same vein, Poonamallee notes that giving birth to and nurturing her first child during her data analysis stage helped her make experiential sense of the theoretical category 'dailiness' (which she has from Long) and, in general, to understand her data on vision and long-term intergenerational commitment (Long, 1999; Poonamallee, 2009, p. 78).

Stressing that experiential knowledge is tacit, and cannot be reduced to propositional knowledge, therefore does not mean that it is has no semantic content or is totally unrelated to propositional knowledge, or even that it cannot be communicated at all. On the contrary, personal experiences together with practical knowing (to which I return below) make up a tacit resonance field of meaning which one draws upon in understanding the words of propositional knowledge. The tacit semantic content thus 'resonates' in one's understanding, giving the words a significance-rich meaning. When one communicates with other people who have had similar experiences, their words may 'call up' one's experiences, 'draw them in' and let them 'resonate in' one's appreciation of what they are saying. In this sense, the experiences play an important part in making a conversation meaningful and 'deep'. On the other hand, when communicating with people who lack such experience one will *not* be able to communicate the experiential and practical aspects to them, since they do not have the relevant resonance field of meaning, but *only* have the words. Conversations in such cases will often be experienced as 'shallow' or as 'not getting to the heart of the matter'. In this sense, the experiences *are* tacit: One cannot communicate them *to* anyone, but one can communicate *about them and with them* to people who share them. Experiential knowledge is thus a form of knowledge distinct from and not reducible to propositional knowledge (in contrast to the way it is treated in practice in the literature referenced above), but with a bearing on the latter (in contrast to the opposite tendency, i.e. to dissociate forms of knowledge completely from one another).

2.2 The practical aspect

'Practical knowing' is the form of knowledge involved in exercising a skill: the 'knowing how' as opposed to the 'knowing that', which Ryle famously analysed (Ryle, 1949). Examples include as diverse phenomena as riding a bicycle, driving a car, playing the clarinet, discerning indicators of illnesses on X-ray pictures, solving math equations, speaking a language. What is common to these diverse examples is that 'the knowing is in the doing' and that a 'practice' is involved, a discernible holistic pattern in one's interaction with the world. 'Practical knowing' is involved in the categories of *khresis* and *praxis*$_2$ described by Eikeland, as well as in *praxis*$_1$ (cf. above) (Eikeland, 2012). According to Dreyfus & Dreyfus exercising a skill (at least when one is an expert at it) is constituted by "involved coping" where the agent is fully taken up with the situation and responds immediately to the demands and possibilities it poses. This is done, according to Dreyfus and Dreyfus, through holistic pattern (gestalt) recognition, where the agent responds immediately and intuitively to new situations in a "holistic pairing of new situations with associated responses produced by successful experiences in similar situations" (Dreyfus & Dreyfus, 1986, p. 35) without representational awareness neither of actions, body, or skill nor even of the holistic pairing itself. Similarly, Wittgenstein (on the Scandinavian reading of him to which I adhere) stressed that knowing "how to go on" in exercising e.g. the skill of addition is not a question of mental representation or interpretation of "the rule of addition", but rather is a feel acquired through concrete examples for what counts as proceeding in the "same way": a feel for practice (Wittgenstein, 1958, §§ 71, 75, 78, 208, 210). As Wittgenstein says: "If I have exhausted the justifications I have reached bedrock and my spade is turned. Then I am inclined to say: 'This is simply what I do'" (Wittgenstein, 1958, §217). In the doing itself, in the action, not the representation of it, is a tacit embodied understanding of the situation.

The role of rules in practical knowing, and thus of the possibility of propositionally expressing what is involved in it, has been a point of much debate, not least because Wittgenstein has had other receptions than the Scandinavian

one. Thus, in the English-speaking world, his main point concerning practice has been taken to be that rules are 'flexible' and require interpretation in new situations (Baker & Hacker, 1984; Kripke, 1982; C. Winch, 2006; P. Winch, 1990). The premise is that practice is necessarily rule-governed; the problem is just to explain what we as rule-followers actually do when we follow the rules. Eikeland, too, seems to understand Wittgenstein in this way when he discusses the latter's interest in establishing the 'grammar' of our practices. Eikeland refers to Wittgenstein when he stresses that we as practitioners have a tacit understanding-in-use of the regulations of grammar in our language: grammar, he says, makes up the "performance standards" we as language users all relate to in the same way, regardless of our individual level of "tacitness or articulation of the common forms" (p. 25). The 'common forms' of grammar can, however, be articulated in theoretical representations: in *theoria*. *Theoria* in this way makes explicit what we already know implicitly, 'from inside', through use. "*[P]raxis*-based *theôría* is knowledge shared in common between thinking individuals through language. *Praxis* is shared or shareable as *theôría*" (p. 27). The premise, it would seem, is again that practice is necessarily rule-governed and that practical knowing is the feel of 'being regulated by the rule in practice'.

In contrast, I wish to follow Dreyfus in insisting that practice can be regular without being rule-governed (Dreyfus, 1979). Furthermore, I think this is precisely what Wittgenstein was trying to convey: Not that rules, performance standards, do not regulate us. They do. But that we have a tacit practical embodied understanding of practice which goes deeper than the rule, which so to speak regulates the way we let rules regulate our practice: It gives us the 'feel for' when rules should be followed, when they should be amended and when an exception would be appropriate. It is what lets us determine whether a rule has been followed in the first place. Furthermore, even if large parts of our practice may be *described* by rules, this does not necessarily mean that we are led by the rules when we act (Wackerhausen, 1991). The regularities may be an emerging phenomenon. Alternatively, regularities may, as Dreyfus stresses, be the result of holistic patterns in our activities, resulting for their part from our holistic pattern recognition across situations, rather than the result of explicable rules.

In sum, practical knowing is the tacit feel in action for how to proceed. It is a feel which cannot be fully expressed in rules, or indeed in words, because it is that whereby one evaluates the adequacy of *any* rule, or indeed *any* words, supposedly capturing it. Practical knowing can thus not be fully articulated as propositional knowledge. Like personal experience, it does however contribute to a tacit field of meaning on which we draw when we understand the words of others. In the next section I explicate further how the different aspects of knowledge, though not reducible to each other, act together to form 'knowledge in practice'.

2.3 Knowledge in practice

An indication of how the experiential and practical aspects of knowledge intertwine with propositional knowledge in 'knowledge in practice' is provided in an example introduced by Polanyi (Polanyi, 1962, p. 101). The example concerns the discrimination of relevant features on an X-ray picture, by the medical student and the doctors, respectively. Polanyi describes how a medical student, when first presented with an X-ray picture of the lungs, is not able to see anything but the ribs: she cannot see the lungs and certainly not any specific traits in them, so she understands nothing of what the expert radiographers are saying to one another. After having seen several such pictures, though, the student gradually becomes able not only to make out the lungs, but also to discriminate between traits due to natural variation and traits caused by illnesses of various kinds. The words of the radiographers begin to make some sense. In this process, literally, the linguistic terms and the propositional knowledge of the textbooks acquire concrete meaning for the student in the form of experiential 'knowledge of' the look of different pulmonary diseases, intertwined with practical 'knowing how' to discern the lungs and their features. The 'know how' (practical aspect), 'know of' (experiential aspect) and 'know that' (propositional aspect) are thus acquired as a unity (but with all aspects *analytically* discernible and so non-reducible), a unity which moreover is perspectival in nature: The intertwined knowledge acquired by the student lets traits stand out for her with the significance they have; even decides to some extent what *is* a trait as opposed to e.g. 'how the

lungs in general look', 'an irrelevant misrepresentation of the X-ray machine', or nothing at all. This allows her to 'catch sight of' important health-related traits and neglect, 'see through', irrelevant features like the ribs and individual peculiarities. In comparison with the expert radiographer, the perspective of the student is of course a partial and restricted one, allowing her to discriminate only 'the most obvious' from the point of view of the former. Nonetheless, it is a beginning 'knowledge in practice' of the ways to use X-rays in diagnosis.

Polanyi's example gives a perspicuous illustration of the tacit semantic components of words, of the relationship between tacit and linguistic knowledge, and of the perspectival nature of knowledge. In a decisive respect, however, it is too restricted, on the verge of being misleading. It conveys the impression that 'knowledge in practice' is exercised in a static viewing of static scenes rather unrelated to the contexts of the scenes, as if e.g. X-ray pictures suddenly popped up out of the blue to be inspected and then vanished again. It neglects the fact that such pictures are taken as part of the ongoing activity of diagnosing and helping a person with a medical complaint. Thus, having 'knowledge in practice' in relation to X-ray pictures importantly involves knowing when to take them, and how to act from what they indicate, as well as being able to see what is on them. Furthermore, it does not first and foremost involve knowing this propositionally and on reflection, but instead knowing it 'actionably', *as* action-requests of the situation, *in* the very response to the requests itself. The perspective of 'knowledge in practice' is *action-oriented*. This point corresponds to Dreyfus' and Dreyfus' claim that the expert immediately and intuitively perceives and, without reflection, carries out the actions called for in the concrete situation (Dreyfus & Dreyfus, 1986). In contrast to the claim made by Dreyfus and Dreyfus, however, my analysis does not deny propositional knowledge a role in knowledge in practice, but rather sees it as an integrated aspect.

The example makes visible a number of points concerning the nature of 'knowledge in practice' and the way its three aspects (propositional, experiential and practical knowledge) relate to but are not reducible to one another: 'Knowledge in practice' is a perspective with which the agent meets the

world and through which the world makes sense to him/her. The perspective is action-oriented and significance-structuring, i.e. it lets the situation present itself 'action-packed' and meaningful, resonating with tacit aspects of significance, and lets traits of the situation stand out as 'to be acted upon'. In some instances, this 'acting upon' will take place as pure Dreyfusian intuitive pairing of responses, without reflection or propositional representation. Benner reports several instances of this kind, one of which concerns a nurse reacting at once with chest compression and defibrillation when a monitor showed signs of ventricular fibrillation (Benner, 1984, p. 110ff). Eraut similarly stresses that the choices made in the "hot action" of teaching "are largely intuitive" (Eraut, 1985, p. 128). In other instances, part of the 'acting upon' will involve 'taking note of', 'discussing', 'applying this or that theory' etc., e.g. when doctors discuss the plausibility of different diagnoses, or teachers consider which textbooks to use the following school year. In these instances, the propositional knowledge deemed relevant for description, analysis or discussion stands out because of the perspective so that traits of the situation present themselves immediately as 'examples of this theory', 'describable by that process', 'effects of this cause' or perhaps as 'not yet quite accounted for and important to investigate in greater depth'. That is, the situation presents itself as already significance-structured in terms of relevance for certain areas of the practitioner's propositional knowledge. As for the propositional knowledge which thus 'comes to mind', it will correspondingly present itself as already actualised and adequately modified to be relevant for the given situation.

In all instances, the ones involving propositional representation and the ones that do not alike, propositional knowledge has a role to play, together with personal experience and practical knowing, at the level of determining what stands out in the first place as 'to be acted upon' in the situation. It does so because it, together with personal experience and practical knowing, forms the unity of 'knowledge in practice', and therefore is part of the perspective with which the agent meets the world. Thus, the nurse who reacted at once, without propositional representation, to the signs of ventricular fibrillation did so because the propositional knowledge that these signs might be the beginning of a cardiac arrest was integrated in her 'knowledge in practice'.

Not as something she had to think about (represent propositionally), but as part of what she met and participated in the situation with, i.e. as an active, actionable part of the perspective. As such, it not only allowed her to act resolutely, but was at play in her 'zooming in on' the ventricular fibrillation as 'the most important feature at the moment' to begin with.

As argued above, the relationship between the propositional, experiential, and practical aspects of knowledge within the unity of 'knowledge in practice' is one of interrelation, but non-reducibility, in that the latter two constitute a resonance field of meaning for the first which is necessary for its adequate understanding. Personal experience and practical knowing 'give body to the words' of propositional knowledge, both figuratively speaking in the sense that they supply full significance to the words, and in the more concrete sense that this 'full significance' comes in the form of experiential bodily responsiveness to the given phenomena and of practical sense of how to go about them. Because of this, the tacit dimensions are vital for the significance-structuring which knowledge in practice supplies to any situation. Bringing them to play, letting their significance resonate, in a concrete situation, is required in order for the practitioner to understand what his/her propositional knowledge more precisely means here, and which implications it has in terms of action.

On the other hand, propositional knowledge provides a possibility of further interpretation, (re)direction and transformation of experiential and practical knowledge. As regards the latter, if someone displays an inappropriate habit in the exercise of a skill (like grasping the clarinet too tensely), articulating this fact and keeping a (propositionally expressed) focus on refraining to do so may help change the habit until a new way of exercising the skill without propositional awareness has developed. With regard to the former, as is well-known from psychotherapy and as argued by Taylor concerning emotions like love, shame, and jealousy (Taylor, 1985, Ch. 2), one's interpretation of a personal experience may change when propositional knowledge is articulated about it. Indeed, it may change to such an extent that the personal experience itself is transformed. Through therapy for example, the personal experience of being a mother for the first time may transform from a complex of feelings dominated by anxiety and self-devaluation to a

more positive complex saturated by hopefulness, where the feelings of anxiety and self-devaluation have perhaps not disappeared but have decreased in significance and have been integrated with other, more positive, feelings. It is, however, important to note the following concerning the transformation of experience through linguistic expression: Firstly, the possibility hereof does not negate the tacit nature of personal experience nor its necessity for 'full understanding' of a given phenomenon. To have one's experience of clarinet music changed forever by hearing its sound described as an 'oboe in a tunnel' does not mean that the personal experience of it has been articulated fully in words. It just means it has been touched by words and transformed in the process. And obviously, one still has to have the personal experience of both clarinet and oboe for this to happen. Transformation of personal experience through articulation is itself dependent on the resonance of the significance-rich sense of personal experience. Secondly, personal experiences are not arbitrarily or indefinitely malleable. Though feelings may change by being (re-)described (a feeling of unspecified resentment may be recognised as jealousy, whereby it transforms from the unspecified mode to a more distinct sentiment), they cannot change into anything, everything or nothing, just by fixing certain words to them. As Taylor puts it: "[Our feelings] cannot just be shaped at will by the account we offer of them. On the contrary, an articulation purports to characterise a feeling; it is meant to be faithful to what it is that moves us. There is a getting it right and getting it wrong in this domain. Articulations are like interpretations in that they are attempts to make clearer the imports things have for us." (Taylor, 1985, pp. 64-65).

Summing up, in this section I have presented an ontological analysis of the knowledge of the practitioner, 'knowledge in practice', in order to remedy the lack of clarity in the action research literature concerning the relationship to one another of allegedly different forms of knowledge. In contrast to the two different tendencies in the literature (to either unwittingly reduce other knowledge forms to propositional knowledge in actual argumentative practice, or distinguish knowledge forms to the point where it becomes unclear how they relate at all), my analysis has pointed out three knowledge forms that are distinct and non-reducible, but which interrelate and supply meaning to one another. They are distinct and non-reducible, in that they have distinct

ontological realisations as, respectively, a bodily responsiveness to a given phenomenon (experiential knowledge), an embodied understanding in the doing itself (practical knowledge) and linguistic representation (propositional knowledge). They interrelate and supply meaning to one another, because the former two constitute a resonance field of meaning for the latter, which in turn provides a possibility of further interpretation and transformation of the other two. Their interrelation forms a holistic unity which is an action-oriented perspective on the situation. This perspective supplies significance-structuring *to* the situation and lets traits within it present themselves as meaningful in relation to the overall significance-structuring.

On the basis of the view of knowledge presented here, the 'knowledge in practice' of the practitioners in the vignette may be analysed in the following way: As IT experts serving as company teachers, their 'knowledge in practice' integrated a range of fields, including proficiency in the use of the IT-system which the course was about, company procedures and culture, communication in global and intercultural contexts, and pedagogical structuring of learning activities. Their diverse practical, experiential, and propositional knowledge (on how to go about the IT-system; what to do when the system broke down; how pedagogically to present course content in a way at once in accordance with company culture and understandable for an intercultural audience etc.) acted together as a unified whole to shape the meaning which the proposed e-learning course had for them. As sketched in the vignette, the course more specifically took on the meaning of being unmanageable, too expensive and giving too little consideration to the course participants' diverse cultural backgrounds. The action-orientedness of this meaning had previously consisted in the action possibilities of re-designing the form and objectives of the course; on the day described in the vignette, it consisted in terminating the project.[2]

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[2] The fact that I am able to linguistically analyse the aspects involved in the teachers' 'knowledge in practice' does not imply that there are no tacit dimensions. What I do is to point *at* the areas of tacit knowledge and the way these areas structured the situation for the teachers as judged by what they said. I do not put the tacit aspects themselves into words. I do draw on my own resonance field of meaning concerning teaching and classroom management, though, in trying to understand the significance the situation had for them, as I think my reader will, too.

3. Methodological implications for action research

Across the various approaches to action research, a common denominator is the wish to improve practice through intervening in it in cooperation with the practitioners. As stated by Toulmin, "Action research calls not just for *explanations*, but for *improvements*" (Toulmin & Gustavsen, 1996, p. 210). Or in the words of Pedersen and Olesen (referring for their part to Kondrat & Juliá, 1997): "Action research is change oriented in intent. It is ultimately about collective action aimed at transforming social structures, and challenging practices that unjust [sic] constrain social/economic opportunity or oppress specific social groups…" (Pedersen & Olesen, 2008, p. 16). A large number of action research projects, including the project described in the vignette, furthermore take the cooperation between practitioners and researchers to be one of collaboration towards the common goal of co-creating new knowledge for and about practice (cf. e.g. Heron & Reason, 2001; Svensson, Brulin, Ellström, & Widegren, 2002). I the following I shall discuss a number of methodological implications which the view of knowledge presented above has for this kind of action research.

It is a consequence of the preceding analysis that 'knowledge in practice' is essential for describing and understanding practice, as well as for establishing areas in need of improvement and for evaluating the changes which an intervention brings about: Seeing realistic 'possible alternatives' requires the perspective of 'knowledge in practice', including its tacit practical resonance field of what might reasonably be expected to happen, should certain changes be implemented. Persons without the experiential and practical aspects of 'knowledge in practice' do not have sufficient exemplary basis to draw upon in understanding the propositional knowledge and therefore the propositional knowledge only has superficial, abstract, non-actualised meaning for them. The words will be 'mere words', *i.e.* they will not have an action-oriented significance, neither in relation to understanding status quo, nor in relation to posing and evaluating alternatives. For this reason, changes suggested by persons without the experiential and practical aspects will often be 'too theoretical', impractical or impossible to implement in the concrete given situation with its unique constellation of individual, social, organisational, managerial, and technical circumstances.

At the outset of an action research project, this is the predicament of researchers who are not also (former) practitioners within the action practice. They will not have 'knowledge in practice' within the field and therefore will not have a significance-rich understanding, neither of what the practitioners say nor of the implications of any suggestions they might make. In an important sense, they do not know what they are doing when they engage in the action practice. This was the case for my fellow action researcher and me in the project described in the vignette and our lack of significant-rich understanding of the action practice was a key factor in the failure of the project. I return to this point below.

Researchers, however, in general have something else. They have 'knowledge in practice' of scientific investigation processes and theoretical knowledge relevant to the action practice, for example learning theory, social activity theory, or organizational theory. They have both 'methodological knowledge' and 'content knowledge', to use the terminology of Dick, Stringer, and Huxham (Dick, Stringer, & Huxham, 2009). Furthermore, they have 'knowledge in practice' concerning how to 'go about' such theoretical knowledge within their scientific practice, i.e. how to discuss, critique, develop, and evaluate it through further theoretical and empirical studies (cf. Kanigel, 1986; Zuckerman, 1996). In other words, though researchers at the outset are 'outsiders' to action practice, they are not outsiders *per se*, but rather are 'insiders' to *other* practices. As argued by Dreier, as living beings we always bring other life contexts with us to the present one and the sense the latter makes for us depends on the activities which are meaningful to us elsewhere (Dreier, 2007). For this reason, researchers, too, bring something potentially very valuable to the action research process.

More specifically, practice may create 'blind spots' which hide the inadequacy, injustice or even cruelty of certain habitual ways of acting. As non-practitioners, action researchers may be in a position to identify such 'blind spots' and therefore to question the routines of practice and the aims and values explicitly or, more often, implicitly underlying these practices. Not, as conventional wisdom has it (Wenger, McDermott, & Snyder, 2002), because they are outsiders to the practice, or even because they are 'insider-outsiders' who at once "actively engage in the phenomenon... and objectively view their

own process of engagement" in the words of Poonamallee (Poonamallee, 2009, p. 74) (cf. Bartunek & Louis, 1996). Rather, they can do so in virtue of being insiders to other practices. Their 'knowledge in practice' pertaining to these other practices may supply the situation with a relevance structuring, letting certain traits or even the situation as such present themselves as inadequate, unjust or the like. In this sense, the action researcher may act as a catalyst of discussions about the ways and premises of a practice.

However, the significance of comments on the action practice made by the action researcher must necessarily be evaluated by the practitioners. It takes 'knowledge in practice' to validly discriminate between 'practice-developing suggestions' and 'far-fetched practice-eroding' ideas. Likewise, the practitioner's perspective of 'knowledge in practice' is required to assess and explain which changes should be instantiated, why, and with which means. It is also needed to assess the degree of success of an intervention: It takes the resonance of practical and experiential meaning to fully understand the significance and scope of propositionally stated goals and therefore also to evaluate whether the goals have in fact been reached, and, if they have, whether by acceptable means. Thus, the practitioners' 'knowledge in practice' is necessary both for the validation of the interpretation of the situation supplied by the action researchers' 'knowledge in practice' and for an assessment of the practical implications of this interpretation. Even if the action researcher supplies the initiating comments, she still does not quite know what she is doing.

What is needed here is an intertwinement between the 'knowledge in practice' of the researcher and that of the practitioner. This answer is, however, much more easily identified than it is brought about in actual research projects. Given the nature of 'knowledge in practice' it cannot be brought about simply by holding meetings and talking about research and action practice. Practitioners and researchers literally need to 'work their way' into each other's fields. They have to gain practical and experiential knowledge of 'how to do' the practice in question. They have to establish sufficient tacit common ground for them to understand what the other party says beyond the 'mere words', and to allow them to develop enough of the significance-structuring perspective pertaining to the other party's practice to see the

action research project 'from their side', i.e. see which traits stand out for the other party and with what significance.

Establishing such tacit common ground is a time consuming process which ideally never ends, but in practice is fraught with the risk of participants believing too soon that it has been completed: After becoming initially acquainted with each other's practices, the words said by both parties will make at least some sense, and it may not be clear how much depth of tacit significance is actually missing. The risk is especially great when working under time constraints and/or with a project plan which specifies 'milestones' to be reached, leading for example to the specification of a certain deadline by which 'establishment of mutual understanding of each other's practices' should be attained. Ironically, the risk is greater the more the parties recognise and respect each other's areas of expertise as domains on which they do not themselves have the knowledge required, which they should therefore leave to the other party, but which may 'supplement' their own knowledge. If convergence between the fields of action of the participants and intertwinement of their 'knowledge in practice' are not continuously seen as goals to be pursued, chances are that participants will believe they understand each other when in fact they don't. The result is divergent views of what the project is about, which interventions should be undertaken, what the criteria of success are, and when they have been met.

This is precisely what happened in the case described in the vignette. Though we went through an initial phase of getting to know each other's practices, this phase was not long enough, nor was it practical enough. Given that we as researchers were not former practitioners of the action practice and that the practitioners for their part had never been involved in research before, let alone research on the design of learning situations; the year and a half we spent getting the project group together, defining the project and working with each other was not enough. The time we spent trying out each other's practical work processes was too limited for us to really get at the tacit dimensions of each other's 'knowledge in practice' We were satisfied too early in the process that we 'more or less' knew how the other party saw the project and that our respective 'knowledge in practice' as researchers and practitioners would supplement each other and in combination qualify the

project. The result was that we 'saw' the situation in different ways on the basis of our diverging 'knowledge in practice' perspectives. We therefore in practice disagreed on the nature of learning and on means of assessing learning, though we had repeatedly agreed on these issues 'in so many words' in our many meetings. Similarly, we disagreed on criteria of significance and success. In the end, I now think, we disagreed on what the project was about: For us as action researchers it was about designing a course which was relevant and motivating for the people who were to take it and which supported them in integrating the new course content into their work practice. For the company participants I now believe the project was about designing an efficient course for the teacher. Be that as it may, the bottom line is that we failed in establishing an intertwinement of 'knowledge in practice' between the participants. For this reason, the critical remarks of my fellow action researcher and me concerning the view of learning held by the company participants were not recognized by them as 'to the point' and our suggestions concerning the design of the course were seen as precisely that: suggestions, not indispensable changes justified by learning theory (as they were to us). We, for our part, never quite got the perspective of the company, and therefore were not able to present our suggestions in a way that accorded with what was prioritised by their perspective.

Other studies within the action research literature report problems similar to ours where agreement between participants seemed to be established at the level of linguistically expressed propositions, but where underlying differences in understanding caused impediments and disruptions to the projects. Interpreting these problems as problems of divergences in 'knowledge in practice' helps explain their intractability. Pedersen and Olesen supply two such cases (Pedersen & Olesen, 2008), one concerning a competence development project in a psychiatric ward (Olesen's example), the other investigating gendered meanings in Danish aid organisations (Pedersen's example). Albinsson and Arnesson provide one on the development of appropriate IT supported practices in health care (Albinsson & Arnesson, 2010). Due to space considerations, only one example will be analysed here as a supplement to the vignette. The example is Olesen's, i.e. the project in the psychiatric ward. This project was undertaken by two action researchers and three

practitioners: a nurse, a doctor, and a psychiatrist (Pedersen & Olesen, 2008). Further details on the project are supplied in (Olesen & Nordentoft, 2013). The focus of the project, on which all participants agreed propositionally, was to develop new ways of communicating diagnoses and treatment options to schizophrenic patients and their relatives. As described by Pedersen and Olesen, the project suffered greatly from diverging understandings between practitioners and action researchers on what scientific research can or should be, and in particular from the fact that the main action researcher (Olesen) did not explicitly take up this issue and articulate her basic views on language, relations, and power though they were part of her theoretical justification for conducting research as joint-ownership projects. Initially, she did not do this because she "considered that its explication would be distracting for the local practitioners" (p. 9). Afterwards, she derided herself for not doing so (ibid.) because of the resulting lack of clarity for the participants concerning research methods. Yet at the same time, Pedersen and Olesen describe the culture at the hospital as "dominated by a diagnostic and fault-finding culture, making it unusual to engage in collaborative dialogue" (p. 10). They also emphasise the practitioners' familiarity with the research methods of the natural sciences, established through former research projects at the ward (and presumably also to some extent during their education). In other words, the practitioners' knowledge in practice resonated with non-collaborative, non-dialogic, positivist experiential and practical knowledge of coping with life at the psychiatric ward, including communication with patients and their relatives (the focal area of the project) and ways to investigate and communicate about psychiatric phenomena with colleagues. Their knowledge in practice-perspective thus made suggestions of joint-ownership and collaborative knowledge production stand out as bewildering, non-productive, non-efficient and non-scientific (pp. 9, 13, 15). In this situation, Olesen's wariness of articulating her theoretical viewpoints might well have been a perceptive anticipation, on the basis of *her* action researcher 'knowledge in practice' of the scepticism and perplexity with which the practitioners would have reacted had she done so.

On the other hand, Olesen did not actually 'work her way' into the practice herself, but only approached it through project activities such as observa-

tions and interviews. This means that she never came to share the practitioners' resonance field of tacit significance, and therefore was unable to draw on it in her attempts to convince the practitioners of the advantages of joint project ownership. Conversely, since having such a resonance field is a prerequisite for an adequate evaluation of interpretations of practice and changes introduced to it, Olesen's descriptions of the project and her evaluation that she in spite of all succeeded in introducing more appropriate teaching methods at the ward are actually highly questionable. She even concedes so herself when she remarks that "…we experienced more or less direct negotiations regarding the types of knowledge that collaborative work ought to produce, and about who would be interested in the generated knowledge. After all, why should the participants be interested in a deconstruction of the field's own practices and epistemologies? And what use could they make of interference with their own understandings of relevance in a situation where they, and not the researchers, possessed intimate knowledge about the organisation?" (p. 15). This way of phrasing the issue is made from the point of view of the researcher who is convinced that her "deconstruction of practices and epistemologies" are theoretically sound even if the practitioners do not recognise this to be the case. The upshot of my analysis of the necessity of knowledge in practice for the validation of action research projects is that such a conviction is not justified.

These examples point to general quality issues for many action research projects. If intertwinement between the 'knowledge in practice' of practitioners and researchers is not established, participants will not know what they are doing, nor understand (fully) what they are saying. The risk of misunderstandings and failure of the project is big and serious methodological issues ensue concerning its progress and assessment. The researcher will not be able to discern and evaluate adequately the changes brought about in the project without the 'knowledge in practice' perspective of the action practice, nor can she appraise the influence which the designed changes had in relation to other factors (such as Hawthorne-like factors, possible coinciding staff changes, other initiatives, etc.). The practitioner, on the other hand, though in a better position to notice changes, will lack the research 'knowledge in practice' to judge the scientific relevance which various factors had on establishing the

changes. Assessment of the action research intervention and its results thus falls squarely between the practitioners and the researchers, with neither party able to undertake it because they lack the necessary 'knowledge in practice'. And when the action researcher reports the project within the scientific community, she will have only a very limited understanding of what she is talking about (as will her audience): Because she does not have the practical and experiential resonance field of meaning, she will only understand the linguistic tip of the iceberg about which she is writing. The possible future developments of practice which she can foresee are severely limited in depth as well as in number by the lack of the action-oriented perspective of 'knowledge in practice'. In consequence, so is her understanding of the implications of the project for theoretical issues within her scientific field. The requirement that practitioners and action researchers should 'work their way' into each other's practices in order to facilitate an intertwinement of their 'knowledge in practice' is therefore quite as paramount, if the project is to contribute to scientific development, as it is for ensuring improvements in practice.

4. Intertwining opportunities within different approaches

Action research is a broad field involving various ways of structuring collaboration between practitioners and researchers aimed at co-creation of knowledge. In this section, I consider three types of approaches as to their stand vis-a-vis the demand for intertwining of 'knowledge in practice'. The claim is not that these three approaches are representative of action research in general or on all counts. They do, however, constitute the two end poles of and a 'middle point' on a continuum of ways of organising researcher and practitioner participation in action research projects as regards the possibility of developing 'knowledge in practice'. They therefore give paradigmatic illustrations of the possibilities for intertwining of researcher and practitioner 'knowledge in practice'; i.e. other approaches will *in this respect* be similar to the one or other of these approaches. The three types of approaches discussed are 'division of labour'; 'mutual apprenticeship', and 'co-operative inquiry'.

The 'division of labour' strategy is characteristic of all projects where researchers and practitioners have definite and distinct knowledge responsibilities in relation to one another. Typically, researchers supply research methodology and knowledge of collaboration methods and practitioners supply the project itself (focus area, aim, workplace participants etc.) and knowledge about the concrete organisational setting. Genat's participatory action research represents an example (Genat, 2009). The role of the researcher is here described as that of "a facilitator, interlocutor, interpreter, capacity developer, and advocate" (p. 114). The practitioners for their part supply the experiences and problems to be interpreted. The aim of the research is to articulate the "(often) subjugated knowledge" (p. 107) of the practitioners in order to build "local knowledge" (ibid.) and let them acquire new understandings of their world and of how they can transform their particular life situation for the better. In addition, the researcher may have her own general research questions (e.g. "how do [Aboriginal] health workers describe and interpret their work-related activities", p. 106) which are then informed by the participants' practice-related questions (e.g. "how do we get better at what we do, and, how do health workers within the organisation gain greater professional status", ibid.).

The 'division of labour' strategy depends crucially on linguistic representation of practices. Practitioners and researcher meet and *talk* about action practice, but do not partake *in* each other's practices. Though it is recognised that practitioners have 'local knowledge', it is presupposed that this 'local knowledge' can be formulated in words which the researcher will understand. Genat thus emphasises that practitioners have knowledge which researchers do not, and that their participation in, and ownership of, the research project therefore is vital. However, he explicitly equates knowledge with theory (Genat, 2009, pp. 106, 107, 108), thereby signifying that he understands all knowledge to be propositional. Local knowledge to him seemingly is local, solely in the sense of being available only at a given socio-material position. It is not local in the sense that essential context-dependent experiential and practical knowledge is acquirable only at this socio-material position. In general, a consequence of the 'division of labour' approach is that the tacit dimensions of knowledge in practice and their significance for understanding

propositional knowledge are ignored. No intertwining of practitioner and researcher 'knowledge in practice' is established. The only common ground is the significant-poor one of propositional descriptions which the parties can agree to make.

A further premise behind the 'division of labour'-strategy is that the expertise of researchers and practitioners, respectively, are complementary and that they may combine in the action research project to make a 'larger whole' from the complementary contributions of each perspective. The problem is that 'knowledge in practice' within the action practice is not just a 'contribution' among other 'contributions'. Rather, it is a precondition for the adequate evaluation of how 'contributions' may fit together in the development of practice as well as of what is a relevant contribution in the first place. Therefore, 'knowledge in practice' is a prerequisite for making adequate decisions about divisions of labour, not a part of such a division.

In consequence, the 'division of labour'-strategy highlights the methodological challenges indicated in the last section. Choosing this strategy does not in fact 'divide' the research task between the participants according to expertise (as intended), but instead places the research task on the practitioner (who has 'knowledge in practice' within the field) and divides the researcher away from her research. This is an unhappy situation for the researcher, in respect of her research field and research community. It is also unfortunate methodologically speaking. Though the researchers may influence the practitioners on how to evaluate the output of the action research, e.g. on the choice and use of evaluation methods, the task of evaluation will be the practitioner's. But he will not have the necessary significance-rich understanding of how to actually conduct evaluation in practice because he has not been trained as a researcher. He therefore cannot be expected to describe and evaluate his practice in accordance with the demands of research methodology, even if he makes his evaluations with the necessary significance-rich understanding of the action practice. Adding to this general problem is the further one indicated above that practice may create 'blind spots', and that the practitioner may be too entangled in practice to be able to see them. Though entanglement on the one hand is a prerequisite for a significance-rich understanding of practice, the downside to it is that a critical stance towards prac-

tice may be hard to take. The upshot of these considerations is that the strategy of 'division of labour' in the end leaves the practitioner with a research task for which he is not equipped, whilst leaving the researcher only with the option (or demand) of making critical comments, the propriety of which she cannot judge and the consequences of which she cannot tell. This is hardly a methodologically viable way of conducting research.

The strategy of 'mutual apprenticeship', in contrast, builds on recognition of the need for researcher and practitioners to establish a common ground of acting as a basis for understanding each other and developing an action research project. The strategy is argued for theoretically by Eikeland who chooses the perhaps somewhat unfortunate (for its imperialist connotations) phrase of 'going native' to describe a situation where the action researcher takes part in the practice of the practitioner, and at the same time lets him take part in the practice of research (Eikeland, 2006). It is, in effect, exemplified in the work of Poonamallee though she presents her study in terms of holistic Hindu philosophy and describes her position as an "insider-outsider" (Poonamallee, 2009).

The basic idea of the strategy is that practitioner and researcher take on the relationship of master and apprentice vis-a-vis one another as regards their respective areas of expertise. The two roles repeatedly interchange throughout the different stages of a research project. This collaboration form does not presuppose that participants' complementary areas of expertise may be combined much like pieces in a puzzle to form a 'greater whole'. Rather, the premise is that complementarity may be the starting point of a collaboration, even a necessary starting point since participants engage with one another because of what they each bring to the project, but does not suffice as the ground on which to build the collaboration. The requirement is that researcher and practitioner become, not only acquainted with each other's practices, but fair participants in them. This facilitates their development of experiential and practical knowledge within the other party's field. The quality concerns voiced in the last section therefore stand good chances of being met: Over time the researcher will develop a significant-rich resonance field to draw on in her descriptions and evaluations of the project. As the practitioners gain 'knowledge in practice' within research, the parties will

increasingly be able to undertake descriptions and evaluations together. Eventually, both parties will know what they are doing and understand what they are saying.

Nonetheless, it is highly questionable how often this approach is realized in practice. It has several economical and organisational implementation problems, most of which we experienced in the case described in the vignette. Several of the problems were present, too, in the cases described by Pedersen, Olesen, and Albinsson and Arnesson (Albinsson & Arnesson, 2010; Pedersen & Olesen, 2008). Though their research projects were not designed as 'mutual apprenticeship' projects, they *were* intended to build on the 'partial apprenticeship' of involving the practitioners in the research process. The issues which arose in pursuing this aim are relevant to the 'mutual apprenticeship' approach, too. Firstly, working one's way into someone else's practice takes a long time and so is costly. Action research projects often grabble with funding issues: ours did, as did Pedersen's, Olesen's and Albinsson's and Arnesson's, and practitioners are typically only allotted a comparatively small amount of hours to participate in them, if any at all. Researchers likewise have limited time to partake in the action practice. Often, there is simply not enough funding to allow participants to gain 'knowledge in practice' within each other's fields. Secondly, as pointed out by Pedersen and Olesen (Pedersen & Olesen, 2008, p. 5), action research projects are typically accessed through the management level, but are often carried out with other practitioners in the organizations who either choose themselves to participate or are assigned to the project by the management level. In the first instance, the actual practitioners, as in Pedersen's case, are not necessarily the most central ones for realising and implementing the project. In the second instance, practitioners need not be very committed to the project. This took place in Olesen's case and to some extent in the vignette case, too. Thirdly, organisations may for reasons of confidentiality limit the researcher's access to some of the relevant work settings. From her description, it seems clear that this was part of the problem in Pedersen's case. Fourthly, the practitioners may not see the point of the 'partial' or 'mutual apprenticeship' at all, because their take on the project is a 'division of labour' approach where they expect the actual research process to be the

researchers' responsibility. This happened in both Pedersen's and Olesen's cases (p. 9). In a somewhat different way, it happened in the vignette case, too. Here, we did agree 'in so many words' to take part in each other's practices to establish a common ground. As it turned out, however, we, researchers and practitioners, simply did not understand the ideal of 'mutual apprenticeship' in the same sense. This is the problem of 'knowledge in practice' once more: Our respective significant-rich understanding of what 'mutual apprenticeship' entails differed significantly in terms e.g. of time and of the type and amount of specific activities we should undertake in each other's practices. My fellow researcher and I repeatedly experienced a lack of interest on the part of the practitioners when we sought to involve them in research methodology. They, for their part, were probably aggravated by our repeated attempts at getting them to spend time on issues which they considered to be our responsibility, and irrelevant for their take on the project. In point of fact, I now think their significant-rich understanding of our linguistically expressed agreement on the need for establishing a common ground was much closer to what we as researchers saw as a 'division-of-labour'-approach than to what we meant. I think the common ground they found it necessary to establish was the propositionally expressed one we could agree upon in the meetings, coupled with a few guided tours around firm headquarters so that we researchers could 'see what was going on'. The general concern to be drawn from this case is the fifth implementation problem: Initial perspectives may vary considerably as to what phrases such as 'mutual apprenticeship' and 'the need for intertwining of 'knowledge in practice'' refer to. Establishing a common understanding hereof is itself a 'knowledge in practice' problem which may constitute a barrier to pursuing Eikeland's strategy.

A variant of the 'mutual apprenticeship' strategy is found in the approach of the many action researchers who have a background as practitioners within a profession (Reason & Marshall, 2001). Getting an education as researcher after working several years in practice means intertwining action practice 'knowledge in practice' with research 'knowledge in practice' in the opposite direction to the one Eikeland focuses on. This has the obvious advantage that the researcher has 'knowledge in practice' within the action practice from the beginning. However, such researchers (termed 'practitioner-researchers' in

the following) will have the problem of the practitioner sketched above: Their significant-rich understanding of practice will have taken form and content from one specific position among many relevant ones and there may well be 'blind spots' which they, qua their prior insider-perspective on the action practice, are not able to see. An illustrative example is inadvertently supplied by Benner in her report of the words of an expert nurse: "When I say to a doctor, 'the patient is psychotic', I don't always know how to legitimise the statement. But I am never wrong. Because I know psychosis from inside out. And I feel that, and I know it, and I trust it." (Benner, 1984, p. 32). Benner who is a nurse practitioner-researcher analyses this statement as a case of intuitive expertise on the part of the nurse, and indeed it may be. Alternatively, Rolf argues that 'psychosis' is a problematic category used to label non-conforming persons (Rolf, 1991). The fact that Benner doesn't consider this interpretation is a possible blind spot on her part.

A further problem for practitioner-researchers is that other practitioners will tend to see them as practitioners. This will influence the interaction between researcher and practitioner. On the one hand, with some practitioners, it may aid the establishment of a trustful atmosphere, and let the researcher have access to information and points of view which would not otherwise have been disclosed to her. But on the other hand, it may also make it difficult for the researcher to fulfil her role as researcher. It may for example be awkward to ask about procedures or opinions which she, qua practitioner, is expected to know about already[3]. It should be noted that even researchers who are not former practitioners may experience these problems, to the extent that they progressively become engaged in the action practice and develop 'knowledge in practice'. Progressive entanglement in practice will make it increasingly difficult to take a critical and radically innovative stance on practice.

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[3] Thrysøe and Dohn report on similar advantages and problems from their studies of nursing students' transition to newly qualified nurses and creation of situational interest in biology lessons, respectively. These studies were not action research projects, but the methodological issues are the same as regards the way practitioners treat former practitioners who are now researchers. Being themselves a nurse and a biology teacher, respectively, they were expected to act like ones, not to take on the researcher role (Dohn, 2006; Thrysøe, 2011).

A third strategy, between the end poles of 'division of labour' and 'mutual apprenticeship', is the co-operative inquiry approach described by Heron and Reason (Heron & Reason, 2001) and exemplified in a number of case studies (e.g. Baldwin, 2001; Heron, 2001; Hills, 2001; Reason, 1988; Weil, Bhandari, & Shah, 2002). The baseline of this approach is that a group of people join together to formulate a common project within an area of human activity. A group may consist of practitioners who work in the same field/within the same profession but in different practices (usually because they are employed by different institutions/organisations). Other examples include families investigating new styles of living, and ill people investigating a particular healing practice (Heron & Reason, 2001). Research is done in cycles of reflection and action, where the participants are all both co-researchers and co-subjects, engaging in the actions which they agree upon in the reflective sessions. As described by Heron and Reason, co-operative inquiry may be very diverse in length depending on the question explored, ranging from short workshops (with several cycles of reflection and action taking place during the workshop) to yearlong projects. Co-operative inquiry may be started either by initiating researchers who choose a topic, invite others to participate, and initiate them into the method; or by 'bootstrapping' groups who read about the method in the literature and embark on the inquiry process together, without being joined by accredited academic researchers (Heron & Reason, 2001).

What differentiates this approach from the ones discussed above, as concerns the issue of intertwinement of 'knowledge in practice', is that the co-researchers typically do not come from the *same* action practice, but from ones which are *similar enough* for them to have a wealth of personal and practical experiences to draw on to give significant-rich meaning to their conversations. They can thus function as a reflective critique group: They have enough 'knowledge in practice' in common with each other to understand the nuances of what is being said, but at the same time, since they are not participants in each other's practices, they may from their insider-to-other-practices view see some of the blind spots of the others.

As a way of developing practices, co-operative inquiry seems ideal: It has the same advantages as Eikeland's approach, namely that an insider-to-other-

practices acquires enough understanding of a given action practice, in this case through the common resonance of tacit aspects of 'knowledge in practice' between practitioners in different practices, to provide insightful practice-developing suggestions. But it does not require the lengthy and resource-demanding process of 'mutual apprenticeship' and therefore presumably is more realistic to acquire funding for.

However, as a way of *researching* the development of practices, co-operative inquiry shares the problems of the 'division of labour' approach: If the inquiry is undertaken by a bootstrapping group without anyone actually trained as an academic researcher, the group will have only the propositional knowledge of the literature to go by. They will not have research 'knowledge in practice' and thus will not have the feel for how to ask, pursue and answer research questions related to the development of their practices, nor will they have the feel for when, where and how to report on their research. If undertaken together with academic researchers, co-operative inquiry is, as regards the research venture, in effect an example of the 'division of labour' approach: Since the co-researchers only meet for sessions of reflection, the academic researchers only share propositional knowledge with the co-researchers. Therefore, no tacit common ground of experience is established, and no intertwinement of 'knowledge in practice' ensues.

5. In conclusion

In this article, I have sought to clarify the ontology of knowledge, including the relationship which different forms of knowledge have to each other, and to point out the methodological implications hereof for action research. I was motivated to take up this issue by the tendencies within action research to either subsume in practice all forms of knowledge under propositional knowledge, or to distinguish them so much from one another that there seemed to be no relation between them at all. The methodological problems ensuing from these tendencies underscore the necessity of becoming clearer about what knowledge is.

More specifically, I have supplied an analysis of the knowledge we have as insiders-to-a-practice. I have stressed that we are always insiders-to-some-

practices so that we do not approach a new practice as outsiders-to-the-practice, but rather as insiders-to-others. The ontology of knowledge, I have argued, is a holistic unity of three knowledge aspects: personal experience (know of), practical knowing (know how) and propositional knowledge (know that). These aspects have distinct ontological realisations as, respectively, a bodily responsiveness, an embodied understanding in the doing itself, and linguistic representation. They are thus not reducible to one another. They do, however, interrelate and supply meaning to one another. The former two constitute a resonance field of meaning, which supplies tacit significance-rich semantic content necessary for the full understanding of the words of the latter. Propositional knowledge in turn provides a possibility of interpretation, (re-)direction and transformation of the other two. Their unity, which I term 'knowledge in practice', forms an action-oriented perspective on the situation. This perspective supplies significance-structuring to the situation and lets traits within it stand out *as* traits – and as traits with *an immediate actionable significance*.

The methodological implications for action research of this analysis of knowledge are that 'knowledge in practice' is essential for understanding practice, for providing adequate descriptions of it, for evaluating practical implications of critical comments, and for assessing the results of action research interventions. 'Knowledge in practice' is the basis upon which adequate interpretations are made: it is that with which one can answer Geertz' validity questions and tell a better account from a worse one. If the action researcher wishes to be able to do so, she therefore needs to participate in the actual doings of the action practice in order to gain practical and experiential knowledge and acquire enough of the 'knowledge in practice' perspective to allow her to understand practice and the changes she participates in bringing about. This will not do it alone, however, the perspective of research 'knowledge in practice' is necessary, too. What is called for is an intertwining of the 'knowledge in practice' pertaining to the two types of practice. And for the action research project to be a success, this intertwining must go both ways, i.e. the practitioners must 'work their way' into the research practice of the action researcher as well. Otherwise the risk is too

great that misunderstandings and failure ensue, as in the case described in the vignette.

The requirement for intertwining of 'knowledge in practice' poses a serious quality issue for the many action research projects concerned with co-constructing knowledge. Do they allow the participants enough time to engage in each other's practices, learning 'how to do' them, for them to actually know what they are doing, or even understand what they are saying (in any depth)? Or do they restrict themselves to making verbal representations of the practices at meetings, thus not allowing the participants a significant-rich understanding, neither of the project itself, nor of its progress and assessment?

In the light of this issue, I have discussed three approaches to action research which together give paradigmatic illustrations of the possibilities for researchers and practitioners to intertwine their 'knowledge in practice'. The upshot of the discussion is that approaches such as Eikeland's 'mutual apprenticeship', exemplified in the work of Poonamallee, stand the best chances of meeting the quality issue implied by the analysis of 'knowledge in practice' because such approaches specifically emphasise the importance of participants actually partaking in each other's practices. This is in contradistinction to approaches which build on a 'division of labour' between researcher and practitioners (exemplified by Genat's participative action research) or on the latter 'bootstrapping' themselves into research solely by reading about it (exemplified by the co-operative inquiry approach). Eikeland's approach has organisational and methodological problems of its own, though: In concrete cases such as the one described in the vignette it may be difficult to convince managers, funding institutions, and even the participants themselves of the need for spending large amounts of time working in each other's practices. On the other hand, progressive entanglement in the action practice may make it increasingly hard for the researcher to take on her 'insider-to-other-practices' role. Effectively, she may become an 'insider-to-this-practice', on a par with the practitioners, and thus develop an insider-perspective adhering to one out of many possible positions in practice instead of an intertwined 'knowledge in practice' which draws on tacit dimensions from both researcher and action practice. In this way, the

analysis of 'knowledge in practice' poses a methodological quality issue for approaches like Eikeland's, too.

A final comment is apposite on the status of the claims presented in this article vis-a-vis the thesis that propositional knowledge without a resonance field of tacit dimensions is shallow. How can I hope to convince anyone by my words alone? The answer is I don't. What I hope is that my reader's own experiences with action research in practice will be brought to resonate by my words, thus enabling a significant-rich understanding of the propositions I have presented. It is on this ground that I think my arguments should be evaluated: not just for what they say narrowly speaking, but by the resonance of lived tensions and dilemmas they invoke. My hope is that my reader's action-oriented 'knowledge in practice' perspective will let the explanation I provide for these tensions and dilemmas stand out as recognisable and reasonable.[4]

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About the author

Nina Bonderup Dohn, MA and PhD, Associate Professor, Department of Design and Communication, University of Southern Denmark. She has been a Visiting Scholar at the University of Sydney from July 2013-January 2014 and a Research Scholar at the University of California, Berkeley, in 2000-2001 and again in 2009-2010. Her main research areas integrate epistemology, learning sciences, and web communication with a special focus on teaching and learning in higher education. She has been involved in several action research projects within this field.

Author's address

Nina Bonderup Dohn
Department of Design and Communication
University of Southern Denmark
Universitetsparken 1
DK-6000 Kolding, Denmark
Email: nina@sdu.dk