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What is Reflection-In-Action? A Phenomenological Account

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ABSTRACT Building on the work of Donald Schön and phenomenological treatments of practice, we propose a phenomenological theory of reflection-in-action that develops this concept further, thereby transcending a number of limitations we find in his theorizing. Our theory includes: an appreciation for the evaluative dimensions built into competent practice that encourage, if not require, reflecting; a further theorizing of the character of surprise; and a fuller delineation of the character of improvisation in relation to practice and its surprises. We begin with a phenomenological account of cognition in relation to work, especially in its form of professional practice. We reframe Schön's arguments in phenomenological, especially Heideggerian, terms and take account of relatively recent theorizing about knowledge-based work, illustrating these discussions with a vignette drawn from field research in the world of practice. We conclude with a discussion of the implications of these arguments for practitioners as well as for further theorizing.

INTRODUCTION

Consider the following scenario. You are sitting in your office, focusing intently on a conversation with a visiting customer about a problem she is having with one of your products. Suddenly, your boss, the division head, appears in your doorway, flanked by a man you have never seen before. Your boss starts yelling at you: 'John, you can't just rearrange the schedule whenever you want! We have procedures for changing things. You need to follow procedures!' You are flummoxed. You have not taken any actions whatsoever with respect to scheduling; you have no idea who the man in the doorway is or why he is, seemingly, a party to this dressing down; and you are dumbfounded that your boss would upbraid you like this in front of a customer. Because of the strangeness of the situation and the urgency in your boss's voice and manner, you find yourself unable to suggest moving the interaction to another setting or another time, and you find a way of bringing the exchange quickly to a close.

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Later, as you unravel the events underlying the accusation, it gradually becomes clear that a situation had developed involving people in the division that the unfamiliar man heads. An off-site provider, with whom you had done business in the past, told this division head's employees – in your name – that they needed to reschedule something. They, understandably, went to their boss to get the lowdown, wondering why they had not heard it from him directly; and he, also understandably, had gone to your boss, equally puzzled, to find out why an employee of another division was giving his employees orders. And that is what led your boss to be standing in your doorway, flanked by her colleague, berating you – for something you never did!

In revisiting this sequence of events and the reactions involved, you were reflecting on your experience. To use Donald Schön's term, you engaged in 'reflection-*on*-action'. Indeed, linguistically, 'reflection' entails an *ex post* orientation – by definition, one is re-flecting *back* on something that has transpired. This would be the meaning captured in Raelin's (2001, p. 11) definition of reflective practice as 'the practice of periodically stepping back to ponder the meaning . . . [of] what has recently transpired' (see also Ron et al., 2006).

Had you, in the middle of the very quick unfolding of this contretemps, been able to recognize that the exchange with your boss was following an attack–defence pattern in light of crucial missing information and to take steps to stop this from continuing, you might have been able jointly to explore paths towards a more productive interchange. Adjusting your responses spontaneously in pursuit of a more collaborative exchange, actively checking on ways, there and then, to turn the conversation in a different direction, and engaging in your share of responsive interaction would be what Schön called 'reflection-*in*-action'. Such reflection takes place 'in the moment', to use the phrase from theatrical improvisation theory, in a way that decreases its chronological–physical separation from action, such that reflection can usefully be said to take place *in the midst of* action. As we will argue later, reflection-in-action and reflection-on-action form the two ends of a continuum of reflective practice.

The relationship between reflection and action has been the focus of attention in management and organizational studies for several years, due largely to Schön's influential work. He was likely the first organizational scientist[1] to focus scholarly attention on the minutiae of professional practice – the kind of thinking professionals engage in and the ways they go about doing their thinking and their work. Schön emphasized the experimental character of the 'reflection-in-action' that professionals engage in, which, he argued, consists of a sequence of four components: routinized action, encounter of surprise, reflection, and new action (Schön, 1987, pp. 26–9). More than anyone else, Schön made us pay attention to the thinking that professionals and, more generally, expert practitioners engage in while in the midst of action. This is particularly important for management and organizational studies since, as Crossan and Sorrenti (2002, p. 29) note, 'spontaneous actions' feature prominently in organizations (see also Mangham and Pye, 1991, p. 36). Insofar as organizational life consists of flows of interactions, such as the one narrated at the beginning of the paper, improvisational responses – namely, reflecting in the midst of action, without interrupting what one is already doing, and reshaping it at the same time – acquire great significance, especially when action needs to unfold quickly and time is short (Alvesson et al., 2008; Eraut, 1994, p. 145).

Several studies of managerial work over the years have consistently shown the little time managers have for reflection in the midst of action, living 'in a whirl of activity, in which attention must be switched every few minutes from one subject, problem, and person to another' (Stewart, quoted in Watson, 1994, p. 36). In decision making in natural settings, especially firefighting, hospital emergency services or military operations, commanders, experts, and officers have to take action in split seconds (Salas and Klein, 2001). Klein (1998, p. 4), for example, estimates that fireground commanders make about 80 per cent of their decisions in less than one minute! Reflecting in action, therefore, matters across organizational contexts. Consequently, as Weick (2002, p. 67) notes, 'to do more things spontaneously is to become skilled in thinking on your feet'. Developing interpretations in rapidly moving situations or flows of interaction and acting on them in the moment creates new insights and enhances the rate of organizational learning (Crossan and Sorrenti, 2002, p. 32; see also Barrett, 1998).

Schön's work has been hugely influential across a number of disciplines dealing with professional work and expertise in various organizational settings, such as studies of nursing (Bulman and Schutz, 2004), teaching (Eraut, 1994), planning (Hoch, 1994), and management, including business process re-engineering (Ciborra, 1999), strategy (Liedka and Rosenblum, 1996), and organizational learning (Burgoyne and Reynolds, 1997; Cunliffe, 2002, 2003; Lanzara, 1991; Raelin, 2001, 2007; Reynolds, 1998; Reynolds and Vince, 2004; Vince, 2002). Interestingly enough, however, his theorizing on practice has rarely been examined critically, despite (or perhaps because of) its influence. Most scholars, instead, have simply adopted his terminology, without subjecting his ideas to the kind of scrutiny that would clarify and develop them further. This includes his very important concept, 'reflection-in-action'.

Some researchers admit that reflection-in-action is difficult to conceptualize (Bulman, 2004, pp. 3, 9). Others detect, not unjustifiably, a certain equivocation in Schön's use of reflection-in-action, which makes the latter easily misrepresented and not always distinct from reflection-*on*-action (Eraut, 1994, pp. 145–7). Even researchers who seek to advance 'reflection-in-action' by highlighting the importance of 'practical reflexivity' (i.e. the questioning of taken-for-granted assumptions, frames, and mental models), in effect end up writing less about practical reflexivity *in-the-moment* and substantially more about practical reflexivity *after-the-moment* (in the form of *retrospective* self-questioning; see, e.g. Cunliffe and Easterby-Smith, 2004, pp. 38–40; Raelin, 2001). Reflection-*in*-action still remains a concept in need of further investigation.

To the extent, therefore, that 'reflection-in-action' is both significant for management and organizational learning *and* has been relatively under-theorized since Schön first articulated it (a point raised also by Fischler, 2008), it is important that the concept be subjected to more critical examination than it has received to date. The purpose of this paper is to critically review reflection-in-action and suggest ways the concept can be further developed. Our concern here is with professional practice and skilled action in organizational settings. We propose a phenomenological, especially Heideggerian, theory of reflection-in-action that transcends the cognitivist traces we find in Schön's thinking (more about this later) and releases more fully the potential that 'reflection-in-action' holds. The research questions we principally address here are: 'How can

reflection-in-action theorizing overcome its cognitivist bias?' and 'What would it look like when doing so?'

Before outlining the structure of the paper, a brief philosophical digression is required to explicate our adoption of a phenomenological perspective for this investigation. Phenomenology is the study of the processes through which phenomena appear to conscious awareness. A phenomenological perspective 'brackets' all scientific, cultural and lay assumptions in order to attend to how phenomena present themselves to us (Moran, 2000, p. 6; Sokolowski, 2000, p. 2). Unlike other forms of phenomenology, especially Husserl's (the founder of phenomenology), Heideggerian phenomenology emphasizes not so much the thinking subject – the way one's mind is intentionally directed towards objects – but the way humans, body *and* mind, are always already caught up in the world. While Husserl's 'being' is a bare ego whose intentionality makes everything explicit, Heidegger's 'being' is a being-*in-the-world*, absorbed in the setting into which it finds itself thrown (Moran, 2000, p. 13). It is precisely because being – think verb here, not noun – is caught up in the surrounding world of actual life-related practices that the character of this world remains hidden to us: we are too involved in it, our activities are too close and too familiar to us, to compel attention.

This is why phenomenology is needed for our present project: it focuses on practices to reveal what remains hidden (Cunliffe and Easterby-Smith, 2004, pp. 34–8; Inwood, 1999, p. 160; Weick, 2003, pp. 467–70; 2004, pp. 75–6) – which is what reflection-in-action is intended to achieve. Heideggerian phenomenology is particularly suited to our inquiry since its starting point is agents already embedded in practices, much like the managers and other professionals of our concern here: actors experiencing the world through their absorption in that world. Heidegger's thinking is congenial for inquiry that takes practice seriously (Chia and Holt, 2006; Cunliffe and Easterby-Smith, 2004; Weick, 2003; Winograd and Flores, 1986). It does not presume that practices are entirely the product of reason or cognition; sense-making may draw equally as well on aesthetic, kinesthetic, musical, or other sorts of intelligences (on this, see Gardner, 1993).

In brief, our argument is as follows. A phenomenological view of reflection-in-action, such as the one we propose here, emphasizes its embedded (social), engaged (practice), and embodied (material) aspects. Within such social practices, reflection-in-action is triggered by 'backtalk' – surprise – from the 'materials' of the practice, leading the practitioner to improvise a reaction or response. There are different kinds of surprise, ranging from 'malfunction' through 'temporary breakdown' to 'total breakdown'. Each one elicits a different type of improvisational response, ranging from 'non-deliberate' (spontaneous readjustments) through 'deliberate' to 'thematic' (explicitly intentional). A more nuanced understanding of surprise and of the modes of response it elicits enables, we warrant, a more sophisticated understanding of reflection-in-action, thereby enhancing what is already known about this important concept.

The paper unfolds as follows. We begin with a critical appreciation of Schön's work, noting its cognitivist bias and the limitations that imposes. We then offer a phenomenological account of work, especially considered as practice, and proceed to reframe Schön's arguments in phenomenological terms, especially Heideggerian phenomenology, taking account of relatively recent theorizing about knowledge-based work, in particular that of Hubert Dreyfus. To illustrate our argument, we then turn to a vignette

drawn from field research and discuss the issues raised by our extension of Schön's work and their implications for further theorizing. We conclude by discussing more generally the characteristics of reflective practice and offer suggestions for further research.

REFLECTING ON SCHÖN

Running through the body of Schön's multifaceted work is the theme of 'reflective practice' (Rein and Schön, 1977; Schön, 1983, 1985, 1987, 1991; Schön and Rein, 1994; see also Schmidt, 2000). Influenced by pragmatism (especially by John Dewey, whose theory of inquiry was the subject of Schön's dissertation), Schön grew unhappy with the strictures of 'technical rationality' in planning and decision-making theories, increasingly popular after World War II, according to which problem solving was treated, in essence, as a quasi-optimization process portraying practitioners as selecting the best models and tools to tackle a given problem. He suggested, instead, 'reflection-in-action' as a more realistic and useful alternative. In this model, practitioners spontaneously apply their 'knowing-in-action' to the surprises they face (which require them to 'problem-solve'), thereby engaging in reflection-in-action.

Yet despite his emphasis on practice and experience, Schön's work is bounded by a certain cognitivist orientation. Although his pragmatist inclinations are clear (for example, the idea of 'surprise' as a prerequisite for reflection echoes one of Dewey's themes; see King and Kitchener, 2004, p. 6), he nonetheless clings to the notion that actors come to know the world primarily through *thinking* about it, converting experiences into mental maps of an outside world. The role of such representations of external realities is the hallmark of cognitivism (Varela et al., 1991, ch. 3; Gallagher and Zahavi, 2008, pp. 91–4; Harré and Gillett, 1994, pp. 6–15), and we and others (e.g. Cunliffe and Easterby-Smith, 2004, p. 33; Furlong, 2000, p. 22) find traces of it in Schön's theorizing.

For example, after drawing the distinction between reflecting *in* action and reflecting *on* it, Schön illustrates the former with an example (his own carpentry in constructing a gate) that appears to entail much more in the way of sitting back and thinking through a problem – *after* the fact, chronologically – than the reflection *in the midst of action* that he seeks to theorize in that passage (Schön, 1987, p. 26). True, he is in the midst of building the gate when an unanticipated problem surprises him. Yet his reflection is (or appears from his narrative as) a rather calm thinking through of what happened and what needs to be done, not while he is in the midst of action but, rather, removed in time (though not in space) from that action. In this and other examples, he frames his approach to reflection – whether in-the-moment or after-the-fact – as re-*thinking* knowing-in-action, that is, as essentially a cognitive problem.

A cognitivist orientation presents certain problems: it led Schön to ignore the embeddedness of mind in social practices; and, once we take a more situated approach, we see that he also under-theorized the character of surprise, as well as of improvisation, which is central in responding to surprises. For example, although surprise requires a degree of mindful openness or 'permeability' that enables *perceiving* an 'event' as surprising (it does not arrive so identified), acknowledging it as surprising might not require rethinking as such, but rather spontaneous, in-the-moment readjustments, including of a tacitly known, kinesthetic sort, such as practiced by improv (improvisational) theatre

performers. The practitioner's response will depend on the kind of surprise encountered. We need, then, a theory of professional action and the role of reflection in it that allows for more than just cognition as operative in human response. In the rest of this section we expand on the limitations of Schön's work and argue why overcoming them is important.

First, although Schön emphasizes the importance of a community of practitioners for providing its members with a common body of relevant knowledge, his theorizing does not include the *evaluative* orientation – something not necessarily cognitive – that the community necessarily develops to guide practitioners. To be a member of a practice is to be someone for whom what is going on in the practice *matters*. Practices are constituted by certain collective self-understandings that situate practitioners relative to particular standards of excellence and to obligations, held both collectively within the practitioner community which individuals aspire to join or to which they belong. These self-understandings cannot be qualitatively neutral: they are articulated through contrasts (e.g. of right and wrong uses of concepts) and, hence, entail an evaluative component (Taylor, 1985, p. 19). Both self-understandings and evaluative components are learned through engaging in and with the practice, not through thinking about them.

For example, as ethnographic studies show, understanding what an 'inept' physician, a 'perceptive' nurse or a 'discerning' fireground commander is requires an empirical understanding of their locally-based conceptual contrasts with 'capable', 'unperceptive', and 'undiscerning' practices, respectively (Benner et al., 1999, pp. 30–47; Cook and Yanow, 1996, p. 442; Nicolini, 2009; see also Gawande, 2002, pp. 13–15). Such contrasts are picked up by individuals through their involvement in actual practice. We need an account of work practices that explores this dimension of acquiring competence since it provides the central context for reflection. That is, we need an account that does justice to the activity through which agents become familiar with their practice world and acquire a sense for its concepts and terms.

Second, in Schön's discussion, the genesis and character of the 'surprises' that emerge in the midst of practitioners' routinized actions are not clear, other than that they signal the lack of fit between existing knowing-in-action and the situation at hand. Schön tended to treat surprise as an undifferentiated phenomenon and as a purely mental issue – a challenge to thought processes. There are different kinds of surprise, however, as Louis (1980) also noted with respect to organizational newcomers, who experience 'reality shock' with respect to organizational time and space, leading to discrepancies between their expectations (of the organization, of themselves) and their experiences. Orr (1996) also describes various kinds of surprises faced by the copier technicians he studied: Tom remarks that Ron thought all of his machines were running well, only to receive eight call-backs the next week; Joan says they're 'going through power supplies . . . which is weird'; Tom describes 'the bizarre behavior' of one of the machines he and Orr had visited (Orr, 1996, p. 17). In these several cases, the flow of normal activity is interrupted, but we are dealing with a different kind of surprise in each instance, and that, as we will discuss later, has different implications for how a practitioner might respond.

Moreover, a surprise can pose not only a mental challenge, but, at times, an emotional one as well, as Louis (1980) also observes. Surprises occur to 'beings-in-the-world' (Heidegger, 1962), for whom things, as noted earlier, necessarily *matter*; and that means

that we are inevitably *affected* by them (Dreyfus and Dreyfus, 2005, pp. 784–5; Schatzki, 2005, pp. 471–2). How we react to them depends on how permeable we are to the surprise – the extent to which we register it and let it influence us. And different kinds of surprise enact different kinds of permeability. Schön (1987, p. 28) acknowledges this to some extent but does not elaborate on it.

Third, Schön's account of improvisation as a way of responding to surprise is also undertheorized. The practitioner, he writes, must deal with unique cases (those marked by 'uncertainty, uniqueness, and conflict'; Schön, 1987, p. xi) by improvisation. His brief treatment of improvisation – defining it as 'inventing and testing in the situation strategies of [one's] own devising' (Schön, 1987, p. 5) – suggests that he, like many others, thought of improvisation as action made up entirely on the spot (see, e.g. Ciborra, 1999; Kamoche and Pina e Cunha, 2001; Weick, 1998). He (also along with others; more on this below) also treats it as an individual undertaking. Yet improvisation is not without preparation; and it is neither a purely solo activity, nor entirely cognitive, as theories and the practice of theatrical improv show. These enable us to conceptualize collective responses to surprise – one of its central characteristics – in a way that engages the development of practitioner competence and the role of reflection in it.

Improvisation in music and theatre draws on a repertoire of situation-specific moves, practiced – repeated again and again, beforehand – over time (in jazz, see, e.g. Barrett, 1998, pp. 606–7; Mirvis, 1998, pp. 587–8; for a useful overview of a broad field of literature, including in organizational studies, see Moorman and Miner, 1998, pp. 700–2, although their definition is quite different from the one developed here). Berniker (1998, p. 584) captures the character of this working with pre-established materials when he writes, concerning improvisation in jazz, that its essence 'is that its structure . . . , a set of relationships that generates patterns for organizing, [is] capable of indefinitely large varieties of performance' (see also King and Ranft, 2001). There is extended preparation, through training or apprenticeship, in the 'rules of engagement, the rules of practice' (Yanow, 2001, p. 59).

Its practiced character goes hand in glove with another feature: the set of practices that comprise this repertoire are typically learned and mastered in some form of collective (e.g. a group or a community; Crossan, 1998; Vera and Crossan, 2004; Yanow, 2001; see also Mirvis, 1998, pp. 589–90 in a sports context). A would-be performer typically takes a series of classes and then seeks to join a troupe (such as Chicago's Second City). On being accepted, he would learn the practice of the group – its ways of interacting, its repertoire, its own ways of doing improv – through extensive classes and group exercises (Yanow, 2007). These 'pre-rehearsed' practices are worked out in, and dependent upon, interactions with others. Improv, in this sense, is a collective practice more than it is an individual one: '. . . improv teams practice together – work together, interact together, and observe one another extensively, over time. Improvised activity . . . builds on extended, prior *conjoint* experience and mutual, collective, *inter-knowing* (as well as self-knowledge)' (Yanow, 2001, p. 59; emphasis added). While some cases of improvisation may appear to some to be more individualistic than others (e.g. physicians, versus musicians), all acts of improvisation necessarily draw on collectively established distinctions and standards of excellence. Orchestra or jazz musicians are no more collective in their playing for being visibly part of a group than physicians are in their surgeries for

seeming to act on their own: both improvise in the context of collectively constructed 'genres', codes of practice, and professional norms.

A third characteristic central to the practice of improv is being 'in the moment'. This bears some resemblance to Lévi-Strauss's concept of 'bricolage': using the materials that come to hand in the construction of a brick wall or whatever activity one is engaged in. The experience common to both of these is their focus on the matter at hand. Lévi-Strauss (1966, p. 35) put it this way:

> [The bricoleur's] first practical step is retrospective. He has to turn back to *an already existent set* made up of tools and materials, to consider or reconsider what it contains and, finally and above all, to *engage in a sort of dialogue with it* and, before choosing between them, to index the possible answers which the whole set can offer to his problem. He interrogates all the heterogeneous objects of which his treasury is composed to discover what each of them could 'signify' and so contribute to the definition of a set which has yet to materialize . . . (emphasis added)

Note the role of dialogue with the pre-existing tools and materials. There is no planning *in this moment* – the planning and preparation have been done beforehand, in the form of rehearsal; no reasoned consideration of a panoply of satisficing options; no considered choice of the one option that will maximize one's desired outcomes. The practitioner reflecting-*in*-action is focused on what he or she is in the midst of doing, much as improv actors are in 'dialogue', in the moment, with the available tools and materials – their fellow actors, the concepts they have introduced into the scene, at times even members of the audience – and the surprises these generate. What appears to onlookers as making-it-up on-the-spot are context-specific, embedded judgments about what will work best in specific circumstances, based upon a repertoire that has been rehearsed – practiced – over time. Making the judgment about what to bring into play *in this moment* – the experimental or exploratory character of seeing whether this bit will work better than what one had been doing before – is the improvisatory act of bricolage, of at-hand selectivity in response to some provocation (a concept in the theatre, a crisis in the workplace). Surprise, in improv, comes from not knowing ahead of time what one's scene partners will specifically say or do in this particular set of circumstances. Responding to it – manifesting reflection-in-action – while drawing on pre-established and rehearsed repertoires requires an intense focus 'in the moment'. The focus is on the subject; the tools remain subsidiary.

A fourth element of improvisation is what its practitioners call 'yes-and': taking what one's scene partner has just said and building on it (see also Crossan, 1998, pp. 596–7; Moshavi, 2001), rather than 'blocking' it by negating the premise. So, when one's scene partner addresses one as 'Mom', a block would entail responding, for example, 'What do you mean? I'm not your mother!'; whereas replying, 'Hi Son, how was your day at school?' would be 'yes-and'-ing. This draws on the permeability required in registering surprises as such, along with their sources, and being willing to engage them. Like being in the moment, it is a non-cognitive orientation.

We now turn to a phenomenological account of work and cognition that enables us to appreciate the embeddedness of mind in social practices, give a more elaborate sense of surprise, and achieve a more nuanced delineation of practitioners' responses to surprise through improvisation.

WHAT IS PRACTICE? A PHENOMENOLOGICAL ACCOUNT OF COGNITION AND WORK

The notion of practice has firmly entered the vocabulary of management research. It is a commonplace of the contemporary practice literature (Nicolini et al., 2003; Schatzki, 2005; Schatzki et al., 2001; Whittington, 2006) to observe that practitioners acquire and develop their skills in the contexts of practices, such that theorizing must engage practitioners acting in the context of broader activity sets, rather than merely focusing on their individual attitudes and beliefs (Cook and Brown, 1999; Cook and Yanow, 1993; Tsoukas, 2005). This is as true of the work of managing as it is of creative work in, for example, music (Ellis Benson, 2003, p. 41). Approaching practice phenomenologically makes clear that the thinking which practitioners use in grappling with particular problems is not a mere *application* of their individual cognitions. Rather, cognition is *embedded* in practice activities, and it is mediated by tools. A phenomenological account of practice elucidates several of these aspects.

Becoming Competent in Routine Practice: Engaged Agency and Evaluative Standards

A practice is constituted in terms of the following three features (Tsoukas, 2005, pp. 80–1). First, a practice typically involves the cooperative effort of human beings, is bounded by rules, and is extended in time. Second, every practice establishes a set of 'internal goods': outcomes that cannot be achieved in any other way but through *participating* in the practice itself (MacIntyre, 1985, p. 187). Third, joining and participating in a practice necessarily involves attempting to achieve the standards of excellence operative in the practice at that time (Ellis Benson, 2003, p. 42; MacIntyre, 1985, p. 187). Practices are organized human activities regulated by goals and standards (MacIntyre, 1985, p. 187; Schatzki, 2005, p. 471; Taylor, 1992, p. 204). Unless one accepts the authority of both the standards of the practice into which one has entered and the judgments of acknowledged masters of that practice, one will never be accepted into that practice. Of course, standards of excellence change over time, and it is precisely such changes that practitioners often debate, especially when new members enter a practice. But for change to be intelligible, standards of excellence must be accorded ontological priority – they are a point of reference, albeit a contestable one, to guide behaviour (Ellis Benson, 2003, pp. 40–9; MacIntyre, 1985, p. 190).

To become a practitioner, one learns the key distinctions that constitute one's practice in order to apply them in the service of that practice. Through his participation in practice, a practitioner gradually learns to relate to his circumstances 'spontaneously' (Wittgenstein, 1980, p. 699), that is to say, non-deliberately. Such knowledge is acquired through active engagement in and with the practice world, not through thought alone. Practitioners' ability to do their work is informed by a background understanding that is inarticulate, albeit known – tacitly. One develops particular expertise insofar as one is able to spontaneously employ relevant distinctions in carrying out a particular practice-relevant task (Schatzki, 2005; see also Dreyfus and Dreyfus, 2005). Repeated practice (usually) leads to mastery or competence.

A practitioner's agency is *engaged* agency: for any of a practitioner's acts to become intelligible to others, it needs to be placed in the context of the practice in which it was generated (Taylor, 1993a, p. 325). Schön's (1983) architects, for example, are able to communicate with one another precisely because they share a set of basic distinctions, along with an evaluative orientation to their work, both of which they have learned in the context of their architectural practice over time. His case studies of teaching (Schön, 1987, 1991) are examples of students coming to learn the categories and distinctions that constitute their practice through interactions with masters of them.

Conversations with Materials: Backtalk

One of the elements that Schön found key to reflective practice is the practitioner's 'conversation' with the materials of his practice. He discussed this extensively with respect to design-related practices. An architect, a planner, or an engineer is constrained by the physicality of the materials used in designing an object or of the setting within which it will be situated, and these physical elements have a way of 'talking back' (Schön, 1987, p. 31) to the designer – resisting – when what she wants to do with those materials or on that site strains them beyond their limits. This is the character of the practitioner's 'conversation with his materials' that Schön had in mind – as if the strategic plan, for instance, could tell the manager that what she was proposing would just not work, given operational constraints, or as if the physicality of the violin or the bow or of the violinist's fingers on the fingerboard or the muscles of his bowing arm 'talked back', telling him that they just cannot do what he is asking them to.

It is important to distinguish 'backtalk' from 'feedback'. *Backtalk* is unplanned and non-rational, whereas *feedback* is a cognitive-rational action. One can ask another for feedback; one does not ask one's materials to talk back – they just do, without being asked, when they resist going where the practitioner is trying to move them. In a university context, for example, one can ask students for feedback at the end of a lecture or a course or get feedback on one's papers from colleagues or reviewers. In the midst of teaching, 'backtalk' emerges through students' eyes or the quality of silence or energy in the room as students communicate that they are resisting the ideas that have been articulated, or do not understand them, or really do get them and find them exciting. Feedback can come during ex post reflection; backtalk is more immediate (Lanzara, 1991, p. 310) and unmediated (Gallagher and Zahavi, 2008, p. 91). Getting the kind of backtalk that indicates that things are not working as one had expected them to, such as in the classroom, is one of the direct signals that one had better figure out what is going on, right then and there – i.e. one had better reflect *in* action in order to address whatever is wrong. In improv terms, we might say that backtalk is what one gets from one's partner(s) on stage, to which one needs to respond *in the moment* (as discussed above): scenes are built out of successive layerings of backtalk.

Having conversations with one's materials is not exclusive to design activities, the main focus of Schön's cases, but a design-interactive context may make the process more readily image-able and visible. Observing designers interact with clients around design 'problems' or design instructors interact with students in similar circumstances – common examples in Schön's work – one can see the process of reflecting in the

midst of action because the design process itself is, rather explicitly, a conversation among materials and tools (sites and spaces, as well as construction elements), their users, and designers; that conversation entails a series of exchanges; and these exchanges take place over time. Yet several organizational and management practices, such as strategic thinking and the pursuit of effectiveness, reliability or innovation, entail design elements or what has been called a 'design attitude' (Barry and Rerup, 2006; Boland and Collopy, 2004, p. 3; Garud et al., 2006; Madsen et al., 2006). This orientation is characterized by a constant effort to improve a state of affairs by remaining open to possibilities, continuing to ask fundamental questions, and being alert to backtalk. At the same time, the design attitude acknowledges that practitioners are always already engaged in action: they are in the middle of something. Practitioners, like others, act in a world already interpreted and already constituted; they achieve understanding through being and acting in it, not through isolated cognition of it. They are thrown into a world which is gradually disclosed to them through the actions they undertake (Spinosa et al., 1997; Weick, 2004; Winograd and Flores, 1986). As Weick (2004, p. 76) aptly remarks, invoking a Heideggerian vocabulary, 'designers thrown into the middle of a contentious meeting . . . will cope more or less adequately in a preinterpreted world depending on how skilful they are at bricolage, making-do, updating transient explanations, staying in motion in order to uncover new options, improvisation, and tolerating ambiguity'. We note the extent to which such coping requires a permeability of self: the being-in-the-moment yes-and that recognizes these forms of backtalk as opportunities for improvisational response in the form of reflection-in-action.

Background Knowing and Levels of Awareness: Absorbed Coping

A practice provides its members with what Taylor (1993a, p. 325) calls 'background' – an inarticulate (although, in principle, articul*able*) understanding of what they do that is implicit in their acts and precedes their ability to articulate descriptions of those acts (Taylor, 1993b, pp. 50–1). The concept bears a family resemblance to what Polanyi (1962) termed 'tacit knowledge' – knowledge that practitioners have that is more than what they can delineate at any point in time (for empirical examples see, e.g. Cook and Yanow, 1993; Nicolini et al., 2003; Styhre et al., 2006). Practitioners' ability to do their work is informed by a background understanding that is inarticulate, albeit known – tacitly. Such knowledge is acquired through active engagement in and with the practice world, not through thought alone. Through engagement in the world of their practice, its members acquire familiarity with that world, which they may then seek to formulate explicitly in thought. Articulation may, and does, take place, but the tacit character of the background knowledge opens the door to non-cognitive elements in theorizing practice, especially concerning relationships with materials.

Conversations with materials manifest the different degrees of engagement that practitioners have with materials, reflecting different levels of focus or awareness. In his discussion of tacit knowledge, Polanyi (1962) distinguished between two kinds of awareness: *subsidiary* and *focal awareness*. When you speak or write, you focus on what you are saying or writing while being subsidiarily aware of the language you use: you attend *to* the

content of your intended communication *from* your background knowledge of the language used (Polanyi, 1967, p. 10). The language is a tool, not the object of your attention. You have a subsidiary awareness of that tool while you speak; you dwell in a set of subsidiary particulars (part of Taylor's 'inarticulate background') without being aware of them focally, much as one dwells in one's home without being focally aware of it. Subsidiary awareness and focal awareness are mutually exclusive in time: one cannot attend to both in the same moment.

As a practice is learned, the tools of that practice tend to 'disappear' from focus – to become transparent or 'available' (Heidegger, 1962) as part of one's subsidiary, background material. We no longer take notice of their being there (Dreyfus, 1991). Dreyfus illustrates this with an analogy to a blind man and his cane:

> We hand the blind man a cane and ask him to tell us what properties it has. After hefting and feeling it, he tells us that it is light, smooth, about three feet long, and so on; it is occurrent for him. But when the man starts to manipulate the cane, he loses his awareness of the cane itself; he is aware only of the curb (or whatever object the cane touches); or, if all is going well, he is not even aware of that, but of his freedom to walk, or perhaps only what he is talking about with a friend. Precisely when it is most genuinely appropriated equipment becomes transparent. (Dreyfus, 1991, p. 65)

It is not only the tool that becomes transparent; so, in a manner of speaking, does the user. She becomes absorbed in the activity she is engaged in, and self-awareness becomes subsidiary, rather than focal. While driving, for instance, an experienced driver is absorbed in the task; she does not apprehend it in terms of its constituent components (the driver, the car, the road, the streetscape) but as a flow[2] – a sequence of activities over time. She ceases to pay attention not only to the car as such, but also to herself as a separate entity doing the driving. Both the actor and the tool have become transparently available (Heidegger, 1962). Knorr Cetina (2001, p. 178) elaborates on this:

> . . . the car becomes an unproblematic means to an end rather than an independent thing to which I stand in relation. It becomes an instrument that has been absorbed into the practice of driving, just as I, the driver, have been absorbed into the practice of driving – I, too, become transparent. When I engage in this practice, I am oriented to the street, the traffic, the direction I have to take. I am not oriented to the car . . . Nor am I thinking of myself as separate from the immediate activity.

Notice that the driver in this example retains awareness *of what she does* – 'there is awareness but no self-awareness' (Dreyfus, 1991, p. 67). For Heidegger this is a primordial mode of existence: being in the world is absorption in the world. Heidegger termed this mode of existence *absorbed coping*, meaning a spontaneous response not mediated by mental representations, which enables one to get around in the world, flexibly responsive to a situation as it unfolds (Rouse, 2000, p. 8).

Dealing with Surprise: Relating Reflection to Action

Having explored competence and evaluative standards, conversation with materials and backtalk, and background or tacit knowledge and absorbed coping, we can now conceptualize their implications for reflection-in-action: how actors respond to backtalk/surprise by engaging in improvisatory action. Different types of disturbance or surprise elicit different types of response.

The world shows up in a particular way to beings-in-the-world for whom things matter, at times when they matter. This is already, and always, the state for practitioners: as noted above, they work in situations where things matter, always already surrounded by objects that matter in specific ways (Dreyfus, 1991, p. 173). The 'internal goods' and 'standards of excellence' which MacIntyre describes provide evaluative orientations that practitioners necessarily adopt towards things that matter. *Pace* Schön's treatment of surprise, the latter is not merely a private, mental affair involving cognition alone: when routine practices are interrupted by surprises, these disturbances produce a caring, a mattering – an affective state – that focuses awareness and attention (Dreyfus and Dreyfus, 2005, pp. 784–5; Schatzki, 2005, p. 472). It is because things matter in that moment that the practitioner is spurred into action to overcome disturbances that arise.

Routine practice – marked by an absence of disturbances – is characterized by absorbed coping, as noted above. Absorbed coping is not the same as mindless behaviour. As Taylor (1993a, p. 325) notes, humans have the capacity to reflect on what they do and to articulate those reflections. The driver may be absorbed in the task of driving, but she can shift to a more reflective focus on how she is driving, if the occasion requires it. When does this happen? When there is a disturbance, an interruption – a 'surprise' or 'breakdown': 'I am not oriented to the car – unless it malfunctions and temporarily breaks down' (Knorr Cetina, 2001, p. 178).

For Schön, backtalk from materials could be such a surprise. When routine practice is interrupted by backtalk or some other form of surprise, one responds with a new type of awareness. Absorbed coping is no longer possible; more deliberate – more focal – forms of attention are called for (Weick, 2003, p. 469) to deal with the disruption. Given that it has interrupted routine practice and surprised her expectations, and given that it is important that the practitioner listen to this backtalk, the practitioner must, in Schön's view, respond with an improvised response. Three types of surprise might occur: 'malfunction', 'temporary breakdown', and 'total breakdown', in Heidegger's terminology (Dreyfus, 1991, ch. 4; we underscore that these terms are used here not in their commonsensical meaning but in the way they have been used in Heideggerian phenomenology). Each invokes its own specific form of response or mode of coping.

(1) For most forms of *malfunction*, the practitioner is momentarily startled but almost immediately shifts to a new form of action that enables him to cope with the surprise, and he resumes what he was doing. You reach in a customary way for your glasses, of which in that moment you are only subsidiarily aware; not finding them on the coffee table where you normally leave them leads to momentary surprise; you immediately shift your attention to the kitchen table, their next most likely resting place; finding them, you resume what you had been doing. Note the

relative lack of change in focal awareness: the glasses that had been part of your subsidiary awareness remain so, as do their expected locations (along with your expectations of where you will find them). This could be likened to the sense of being 'on automatic pilot'. You have overcome this 'malfunction' through a modified form of absorbed coping: *reconstituted absorbed coping*.

(2) *Temporary breakdown*, the second type of surprise, calls one of two different kinds of coping into play, depending on the extent of the disturbance. Had you not located your glasses on the kitchen table either, you would now pay greater attention to the act of searching for your glasses. What was previously transparent or subsidiary in your awareness begins to become more explicitly manifest or focal. As Dreyfus (1991, p. 72) observes, 'deprived of access to what we normally count on, we act deliberately, paying attention to what we are doing'. This is *deliberate coping:* the practitioner is now paying attention to the task at hand.

If the disturbance persists – you still cannot lay your hands on your glasses – and deliberate coping is not helping to resolve it, deliberation intensifies. The practitioner marshals *involved deliberation*, which entails a more focused consideration of what she is doing: she 'stops and considers what is going on and *plans what to do*, *all in a context of involved activity*' (Dreyfus, 1991, p. 72; emphasis added). Both *deliberate coping* and *involved deliberation* are responses to the second mode of surprise (temporary breakdown), their difference being a matter of degree.

Note that involved deliberation is not a detached cognitive reflection but 'take[s] place on the background of absorption in the world' (Dreyfus, 1991, p. 74). At the same time, both deliberate coping and involved deliberation enact the beginnings of a detached intentionality. Although still absorbed in the world, practitioners begin to form representations of the task at hand. The gearbox not working as smoothly as it should grabs the driver's attention, and she begins to experiment with ways of overcoming the problem as she begins to wonder more intentionally about what may have gone wrong. Whereas in *absorbed coping*, the materials or tools of the practice were transparent ('available'), a shift to either *deliberate coping* or *involved deliberation* can reveal the 'unavailable' characteristics of those materials. As Dreyfus (1991, p. 77) remarks, 'when equipment temporarily breaks down . . . involved users no longer encounter equipment as transparent, but as having specific characteristics that are different from those they counted on'. A more detached, cognitive reflection begins to enter the picture.

(3) This detachment emerges fully in the case of a *total breakdown*, the third mode of surprise. Now there is a shift to a more analytic or theoretical reflection: *thematic intentionality*. Once our work focus is completely interrupted or stopped – that is, once involved deliberation is no longer effective or operative – we move to a detached analytic (cognitive, theoretical) stance on the problem as we try to comprehend the underlying mechanisms involved. What were previously context-based *aspects* of the situation now become context-less *properties* of it.

For example, in the involved deliberation mode characteristic of temporary breakdown, trying to fix the gearbox while driving, the driver thinks of 'aspects' of the gearbox and tries a few things. Those situational characteristics, however, cannot be represented by a set of general logical relations, since they are tied to a

particular situation. In total breakdown mode, the driver moves to detached reflection. One who knows about cars may look into the gearbox; although she may invoke the same terminology as she did while driving, her perspective will now be different, and the gearbox will present itself differently: for the first time it will become an '*ob-ject*'.[3] Although this gearbox is a particular one, to fix it, the driver-turned-car-mechanic needs to draw on the abstract (generic) properties of gearboxes and the logical relationships among their parts and between them and other parts of the motor. The situational aspects of the gearbox yield to decontextualized properties of a distinct object. The driver's perspective is now analytic-theoretical, not coping, in the sense that she does not try to make do with a broken gearbox *while* driving, i.e. in the midst of focusing on some other task. The task now is to dissect the gearbox to discover the causes of its breakdown. The practitioner has shifted to detached, theoretical reflection, one of whose characteristics is representational rationality.

Notice that the gearbox has now acquired a different mode of being: it has changed status and is now 'occurrent', in Heidegger's terms (Dreyfus, 1991, p. 79), understood less as an undifferentiated whole than as a bundle of isolated properties which may be studied and related to one another. Whereas in the three previous forms of intentionality (absorbed coping, deliberate coping, involved deliberation), the practitioner is, in varying degrees, immersed in the task at hand and experiencing the flow of the activity, in the analytic reflection characterizing total breakdown, he sees objects and isolated properties of objects. The analytic attitude, unlike the practical attitude of the three previous forms of coping, decontextualizes the phenomenon, examining its features and attempting to relate them to one another. A new view may be obtained that was not previously available: patterns are noted, connections established, and mechanisms postulated.[4]

The three modes of coping just discussed are summarized in Table I. It would appear that improvisation itself changes character according to changes in focal awareness. Routine practice, by definition, would not entail improvising, in the sense that improvisation is required when routine action is interrupted and no longer possible (although we note that conceptually, at least, from the perspective delineated here, improvisational theatre and music might themselves be seen, paradoxically, as routinized practices – it all depends on the setting of the activity). Improvisation within otherwise-routine practices is called into play in the context of surprises – backtalk. To the extent that improvisational practice requires the recognition of backtalk and surprise, we would be less expectant of observing improvisational activity at the level of absorbed coping characteristic of routine practice or even of the reconstituted absorbed coping characteristic of slight malfunctions. Improvisation theory enables us to call attention to the permeability requisite to turn a 'disturbance' into a surprise. Without that openness, one is likely to continue to operate in (reconstituted) absorbed coping mode and, therefore, less likely to improvise: business proceeds as usual. The less effective routine activity is (e.g. in producing the 'lost' eyeglasses), the more one has to resort to something else – and this is where improvisation enters the picture.

Table I. Types of surprise and the responses they generate

	Character of the task				
	Ongoing, routine activity	*Interrupted activity through backtalk/surprise/disturbance*			
		Malfunction	*Temporary breakdown*		*Total breakdown*
			Mild	*Persistent*	
Type of intentionality or awareness	Absorbed coping • Transparency	Reconstituted absorbed coping • Shift to a new way of absorbed coping	Deliberate coping • Attention to the task	Involved deliberation • Reflective planning	Thematic awareness • Analytical/theoretical reflection
Mode of being of entities in the world (e.g. tools, actors)	Availableness	Momentary unavailableness	Unavailableness	Unavailableness	Occurrentness

Illustrating and Discussing Reflection-In-Action

We illustrate this conceptual discussion with case material drawn from observations of the classroom practices of someone we will call Dr T, extended by comparison with brief cases of other forms of teaching. Research included analysis of seven hours of videotape of his classroom teaching and subsequent interviews with him to clarify provisional inferences about what was going on in the classroom and in his thinking about what he was doing (Granick, 2005). Although the setting is not 'managerial' in the typical sense, it has direct parallels to what managers and others in other kinds of organizational settings do in conducting meetings, presenting reports, and so forth (see also Schön, 1983, p. 241).

Dr T is an experienced, practicing psychologist, professor of psychology, and trainer of psychotherapists. At one point in one of the tapes, in the middle of a lecture on a particular theory of psychotherapeutic practice, we see him pause. His body becomes still – he had been gesticulating with his hands and moving his body as he spoke – and he looks up, towards the ceiling, and then down and closes his eyes. After a few seconds, he opens his eyes, makes eye contact with students in the classroom, and says, 'I don't usually do this, but . . .', and then he launches into an example, different – as he explained in a subsequent interview – from what he was accustomed to doing at this point in his lecture, to illustrate the theoretical point he was trying to make. In the interview, Dr T says:

> If there is no 'feedback' [from students during the classroom session], you can't reflect. . . . It takes time to be reflective. I give myself permission to take time. . . . I trust myself to improvise: if I trust myself as a teacher, then I can allow the unpredictable [in the form of backtalk, to use our term, from students and his own responses] to happen.

We see what Dr T does in that momentary pause as an example of reflective practice in which 'temporary breakdown' invokes deliberate coping. Dr T senses backtalk from his students[5] – they seem in that moment puzzled – and proceeds to respond to it, treating it as a disturbance to his customary practice in explicating that particular point. Note that this is not the leisurely, systematic, ex-post-facto rehearsing and critiquing of the he-saids–she-saids of an interaction (the kind of 'Monday-morning quarterbacking' of 'And then I did this because he said that, so I did this other thing . . .') that would suggest a stepping-back-and-engaging-the-question characteristic of detached reflection. Instead, we see in it the 'online', 'real time', in-the-midst-of-it-all seemingly 'split second' judgments that lead the practitioner in different directions from his established, routine practice. It is as if action and/or interaction is/are frozen in time; but out of the range of direct sight (other than through accompanying non-verbal 'behaviours'), Dr T is making practical judgments oriented towards clarifying for the students the activity at hand (the topic they are exploring). This reflective response takes place in the midst of doing something else (if not more than one thing).

We assert that what we see happening in his momentary pause – and we emphasize its brevity: he withdraws, non-verbally, for a matter of seconds – is a shift in awareness from what had up until that point been background or subsidiary to focal or thematic material.

It is a shift from attending *from* the tool(s) being used, to attending *to* the tools themselves. This shift requires the ability to bracket the flow of activity, including thought, in midstream. As Dr T says, '. . . It takes time to be reflective. I give myself permission to take time.'

What Dr T is doing in this time is making split-second judgments about the backtalk and what has just taken place, about where he had planned to go in his lecture, about the effectiveness of that planned course of action, and about an alternate course of action that might be more effective in achieving his objective. We suggest that the internal sensation accompanying this shift is often one of a split screen in which one is trying to focus on at least two things at once. Dr T momentarily concentrates on the task at hand – developing a theoretical point – and looks for ways to respond to the backtalk-surprise. What was previously transparent or subsidiary in his awareness – namely, what he needed to do, as he had done many times before, to explain the subject of his lecture – becomes more explicitly focal. His attention shifting to that task, he digresses from his planned lecture and, drawing on his repertoire of prior experience, inserts a relevant example – it was not in his lecture notes or plan for the class – into his presentation. His response follows the backtalk from his 'materials' – in this case, the non-verbal behaviours of his students – that disturbed the normal course of events. This reflective response takes place in the midst of action, not after the fact; it is embedded in it, not distanced from it.

Clearly, Dr T improvises: 'I trust myself to improvise: if I trust myself as a teacher, then I can allow the unpredictable to happen.' However, although it might appear that his improvisation with respect to his teaching is an individual enterprise, such as Schön theorized in observing the activities of architects and others, we posit that it, too, is engaged agency done in the context of a social practice. University teaching as a practice is learned and enacted with students. Dr T can only manifest this aspect of his practice in the course of conducting a conversation with his 'materials', and as his materials are human, they bring a social, interactive dimension to the practice. He enacts improvisatory repertoires that he has developed over time in interaction with various groups of students, a process that characterizes, arguably, work groups (teams) in organizations, as well.

Of course, Dr T could have recognized the backtalk-surprise from his students and chosen to ignore it, or he might even not have noticed it at all. The fact that he does register their backtalk indicates an additional dimension of reflection-in-action present when the backtalking 'materials' are human: the practitioner focuses not just on getting ideas across, but doing so in a way that 'makes the self more permeable', in Dr T's words. This is what we saw earlier as central to the 'yes-and' willingness to acknowledge the ontological status of surprises as such. It is as if, in such a human-centred setting, the person of the practitioner becomes one of the tools of his own practice, and backtalk from human 'materials' brings the practitioner-as-tool into focus as well.

Moreover, this permeability of self entails a setting aside of one's ego, allowing someone else to share centre stage. Reflection in the midst of action rests on a reciprocal relationship with other parties to that action: in-process course adjustments draw on a conscious awareness in the moment that entails both a self-observing and an observing of other(s), *along with a willingness to be visibly and publicly* '*not-knowing*'. It requires making one's inquiry public – or at least, publicly accessible: that is the permeability; and this, in

turn, requires relinquishing (or being willing to relinquish) the sense of control over the situation and/or over others (although one retains control over oneself). It means living with the possible anxiety of not-knowing, as well as with whatever anxieties might be aroused by being perceived, publicly, as not-knowing.[6]

We hear this permeability in Dr T's 'confessional' 'I don't usually do this', as well as in looking across the cases described in Schön (1987), in particular in the cases of Quist and Petra (Schön, 1983, chs. 3, 5; 1987, chs. 3–5) and Dani and Michal (Schön, 1987, pp. 142–5) in the architecture studio (see also the discussion of these in Schmidt, 2000). When the 'materials' are human, a de-centring of self can entail a quality of intense focus on the Other, which can put the practitioner 'in the flow' (or 'groove'). The de-centring of self that is operative in this kind of reflective practice rests on and entails a reconceptualization of the character of expertise. In lieu of subject-matter expertise, reflective practitioners are expert in *processes* of inquiry, especially mutual inquiry. They are willing to accord legitimacy to others' local knowledge, whether of situations or of themselves.

The Dr T case also illustrates a different moment in the taxonomy of surprise. When Dr T says to his students, 'Note what I just *did*' (emphasis added), he makes explicit that what he had just done in his teaching practice was precisely what he was trying to train them to do in their counselling practice (a multiply layered process of teaching reflective practice reflectively, which Schön (1987, p. 297) referred to as a 'hall of mirrors'). Here, too, he stops the spontaneous unfolding of the activity at hand, this time to point, explicitly and *retrospectively*, to what he just did. In this instance, he does not respond to a surprise – to backtalk from his students – but, instead, intentionally arrests the flow of activity in order to enable students to see *analytically* what had taken place. In our terminology, this is a case of 'total breakdown', deliberately brought about by Dr T in order to move students from a state of absorbed coping to a state of thematic awareness. Instead of continuing to develop his line of thought in the lecture, Dr T holds up his own practice – interacting with ideas and students and responding to backtalk – as an *ob-ject* for their mutual inspection, modelling a mode of reflective practice that he intends for them to emulate in their own developing practices as therapists. The activity-based focus is completely interrupted, and the students are invited to shift their focal awareness in order to reflect with him on the mechanisms he used in explaining his point.

CONCLUDING THOUGHTS

Reflection-in-action has been a very useful concept in management studies, and huge credit is due to Schön for coining the phrase and developing the concept. Our contribution expands on that work by developing a phenomenological perspective that has enabled us to sketch a more sophisticated version of reflection-in-action by distinguishing different kinds of surprise and awareness, and articulating more clearly the way improvisational responses emerge in the midst of action.

Although our phenomenological account of reflection-in-action has been mainly illustrated with a case drawn from the practice of teaching, one may easily think of similar cases from other organizational settings. Cases of managers involved in tense conversations like the one reported at the beginning of the paper (for similar vignettes, see Crossan and Sorrenti, 2002, p. 29; Cunliffe and Easterby-Smith, 2004, p. 31), interacting in

Board meetings (see Mangham, 1988), engaged in strategy making meetings (Liedka and Rosenblum, 1996, p. 153), presenting and discussing their proposals in design review meetings with other managers and engineers (see Carlile, 2002), technicians repairing broken photocopiers (Orr, 1996), and firefighters quenching fires (see Klein, 1998) all involve practitioners immersed in real-time flows of interaction, eliciting their spontaneous responses to various kinds of surprises that require practitioners to engage in reflection-in-action. Informed by the work of Heidegger, mainly as interpreted by Dreyfus, we have sought to theorize the different sorts of responses that encountering surprise might elicit. This has enabled us to delineate a more finely grained portrait of a range of reflective practices, varying according to the kind of surprise encountered and the intensity of disturbance of routine practice it occasions.

For example, in the opening vignette, the exchange could be re-described, from a phenomenologically-oriented reflection-in-action perspective, as follows. When your boss begins to yell at you, for no apparent reason, in front of an unknown man and a customer, you experience the episode, which is taking a decidedly unpleasant turn, as a 'temporary breakdown' in that it interrupts (but does not completely derail) your meeting with the customer. To act as a reflective practitioner in the midst of action, you need to reflect right there and then, in a split second, as it were, on how you respond. Done in the midst of the unfolding conversation with your boss, your response will be one of 'deliberate coping': you work, in a deliberate fashion, to defuse the awkwardness of the situation by exploring the sources of the event, with attention to your choice of words, your tone of voice, your body language. You create, in the moment, your equivalent of Dr T's 'I don't usually do this, but . . .', stepping mentally out of the routine background flow to make the process more focal. Whereas in 'routine' circumstances, conversation with your boss may be unproblematic, with relatively no need to pay focal attention to your language, now language itself (the main means of communication, including gestures, tone, and other non-verbal aspects along with words) becomes the focus. If your boss persists in her manner of addressing you, you would – assuming you still wished to act in a reflective way there and then – proceed in the mode of 'involved deliberation': you would become even more focally aware of your language, aiming to calm your boss down, asking questions to find out what she was talking about, how the problem had appeared, why she thought you were involved in it, how it could be resolved, and, last but not least, helping her to see that there was a better way of addressing you and the problem than yelling. All this would be done in real time, in the midst of conversation, and ideally out of the presence of both the unknown man and the customer.

This event was not, however, an isolated episode but part of a chain of interactions that began prior to your boss showing up on your doorstep. Imagine, further, how different the exchange and outcome might have been had your boss herself been more of a reflective practitioner. Instead of interrupting your meeting by launching into a diatribe accusing you of having taken some action, based on her own untested assumptions about the situation, she might instead – with suitable apologies for interrupting (and perhaps asking you to step out of earshot of your customer) – have proceeded to introduce you to her colleague, tell you what she had been told, and invite you, in the spirit of analytical reflection, to clarify if you had, indeed, taken these actions and if so, to explain your reasoning for doing so; whereupon all three of you could figure out the

steps necessary to remedy the problem. We might imagine that she herself was responding to a 'total breakdown' – an upset colleague appearing in her office, demanding immediate explanation which she does not have, completely interrupting her routine action – as if it were a less 'intensive' form of breakdown calling for a less aware, less intentional, and certainly less reflective form of coping.

A full analysis of that vignette, something for which we do not have space, would explore how the various parties might have engaged in a more reflective practice. Our brief treatment underscores the fact that practice, reflective or otherwise, is not a solo activity, thereby highlighting several possibilities: the potential for mismatch between types of breakdown and types of responses; the difficulty of producing reflection in an interaction in which another party is not reflective, especially when that person is in a position of hierarchical authority and/or power and a second person is unknown; and the complications of interaction when one party sees routine action whereas another experiences a breakdown, or when one is a more reflective practitioner than the other.

How might reflection-in-action be recognized? Can we know it when we see it? Developing a more nuanced understanding of the kinds of actions that draw out backtalk of various sorts leads us to think that we can recognize it, if not immediately in the moment, then in reflecting back on it. Reflection-in-action requires a break in routine practice, as when Dr T says, 'I don't usually do this but . . .'. Here is an improvisational coping that says 'yes, and' to the backtalk. As we argued above, such improvisation draws on pre-rehearsed, practice-based activities. To educate for reflective practice and reflection-in-action within it, then, we need to train for a sensitivity to backtalk and improvisational ways of responding to it.

Furthermore, our phenomenological perspective on reflective practice leads us to identify the following characteristics of reflective practice, which hold direct implications for management practitioners:

(1) Reflective practice is an activity intended to explore other 'ways of seeing' than those presenting themselves as the most evident explanation (the eyeglasses should be on the table at hand, but they are not; where else might they be?); it opens inquiry into epistemological authority, which is not necessarily implicated in positional authority (in the opening scenario, the department head does not necessarily have the best explanation for source or cause of the problem).
(2) Reflective practitioners remain, therefore, permeable, adopting an attitude of inquiry rather than determining answers based solely on positional authority ('Someone has told those employees to move – was it you?').
(3) Such openness requires making one's thinking transparent (the permeable self), which entails setting aside one's ego, as one may not have all the knowledge (or answers) necessary to comprehend a situation (i.e. reflective practice rests on a learned capacity to raise questions, including of oneself, more than on an ability to provide answers).
(4) This permeability of self implies attention and responsiveness to unfolding processes, including recognizing surprises; in short, it implies reflection-in-action. Surprise is not an objective phenomenon but, instead, is situational and called into being by recognition and labelling as a surprise.

The major theoretical implication of this paper is that there is not one form of reflective practice, but several. These might be arrayed on a continuum, ranging from the most intense disturbance – the total breakdown that calls in thematic awareness – which instantiates a separation, in time and in space, between two spheres of activity, to the deliberate coping and involved deliberation occasioned by mild and persistent temporary breakdowns, in which reflection and practice are intermingled. The former consists of the temporally-spatially separated activity of reflecting *on* practice; in the latter, one reflects *in* – in the midst of – practicing. Reflection-in-action, in other words, is a component of reflective practice: the latter consists of both reflection *on* action *and* reflection *in* action.

From a perspective that privileges explicit cognition, the separation of reflection from action or practice could be seen as suggesting that reflection is not only separate but, somehow, superior – that its difference from reflection-*in*-action might lend it a higher status (something articulated in figures that represent the two activities vertically, with reflection above action/practice). It needs, then, to be emphasized that reflection-in-action is not a property *only* of experts and the demonstration of expertise. There is a sense in which Dreyfus and Dreyfus (2005) appear to be, in some way, holding out experts as 'exemplars' of exceptional ability – that is, as having already achieved that state of superior achievement. Yet they do say, thankfully, that experts are still learners (although this point disappears in their model). Insofar as an expert is open both to surprise and to the possibility of publicly 'not-knowing', that expert is always in the process of learning.

Detailed, 'on-line' ethnographic research is still needed to show empirically how different types of professionals and managers handle surprises in the midst of action, in different types of action, with what results. Such research could usefully identify the organizational conditions, including power and political dimensions, in which reflection-in-action may flourish or, by contrast, be constrained. Further research at the organizational level into how surprises are treated can illuminate the ways in which organizations as interpretive systems handle unexpected occurrences and the coping mechanisms they trigger (Weick, 2003). It strikes us that the major difficulty for individuals in producing reflection-in-action lies in learning how to be permeable to backtalk in a way that would enable the practitioner to halt routine action and engage in improvisational reflection in the midst of practice – something that 'you' in the opening vignette might have done to break the boss's routine-type coping. Making oneself permeable is not a metaphysical trick but the expression of an attitude that is pragmatically shaped in particular organizational environments. Investigating how power and other elements influence practitioners' ability to recognize surprises, be responsive to developing processes, and be mindful in the midst of action will be valuable for our understandings of management and other professional practices.

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NOTES

[1] One might quibble with our identifying Donald Schön as an organizational scientist. He was educated in philosophy and held two faculty positions in philosophy departments before joining the Department of Urban Studies and Planning at MIT, where he taught planning theory and studied the practices of planners, architects, and other professionals. He also, however, consulted to industry through positions at Arthur D. Little and his own firm, OSTI, and he published major works on organizational learning and management and managers' behaviours. Between his early publications and his later ones, he added an umlaut to the spelling of his name. We have used this later spelling throughout.

[2] This notion of flow bears a family resemblance with the concept as developed by Csíkszentmihályi (1990). We do not have the space to discuss this, however.

[3] We use the hyphen to emphasize the Latin roots of the word object, denoting something opposite and facing the onlooker.

[4] The isolation of properties – the practices of abstract analysis and pure theory – requires, of course, its own skill and needs to be learned, something that underlines the essential dependence of even the most abstract kind of analysis on practice (Dreyfus, 1991, pp. 80–2; Kuhn, 1962; Polanyi, 1962, pp. 100–3).

[5] He uses the word 'feedback', but on the tape, we neither see nor hear any comments from the students. This leads us to think that in our terms, he is sensing backtalk from his human 'materials'.

[6] We are indebted to Jamal Granick for the observations about anxiety and ego made here and in the next paragraph.

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