

# Technical rationality in Schön's reflective practice: dichotomous or non-dualistic epistemological position

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## Abstract

Donald Schön's theory of reflective practice has received unprecedented attention as an approach to professional development in nursing and other health and social care professions. This paper examines technical rationality in Schön's theory of reflective practice and argues that its critique is a broad and often overlooked epistemological underpinning in this work. This paper suggests that the popularity of Schön's theory is tied in part to his critique of technical rationality, and to his acknowledgement of the significance of practitioner experience and indeterminate zones of practice in the development of expertise. Schön tapped into a growing disillusionment with technical rationality that coincided with a crisis of knowledge across a range of disciplines. The question is raised as to whether Schön's critique sets up a dichotomy between technical rationality and experience, or overcomes it. The conclusions suggest that Schön is not discarding research-based professional knowledge, but rather challenging conflated views of its practical significance. In this way, it is proposed that his critique of technical rationality can be interpreted as an attempt to overcome dualistic thinking as it pertains to professional knowledge.

*Keywords:* reflective practice, epistemology, technical rationality, Donald Schön, professional knowledge.

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Donald Schön's theory of reflective practice has received unprecedented attention in the health professional education literature. In this paper, I suggest that underlying Schön's theory is a broad and often overlooked epistemological challenge in the form of a critique of technical rationality. I propose that such a critique contributes to the widespread popularity of

the theory, and that parallel epistemological challenges are currently being raised in other fields. Part of the confusion surrounding interpretations of reflective practice may well be related to a widespread failure to acknowledge this epistemological underpinning and the challenge that such a perspective poses to traditional notions of professional knowledge. Therefore, in this paper, I consider the epistemology of reflective practice from the perspective of a critique of technical rationality and reflect on the implications for interpretations of the theory and for conceptions of professional knowledge.

### **Practitioner experience and popularity of reflective practice**

Although written two decades ago, Donald Schön's theory of reflective practice continues to be of central concern in nursing (Honor Society of Nursing, 2005), and has gained unprecedented popularity in the professional discourses of the health and social sciences. In the field of professional education, Eraut (1995) asserts that *The Reflective Practitioner* (Schön, 1983) is the most quoted book on professional expertise in recent years. Gilroy (1993) observes that there is no denying the enormous influence that Schön's work has had in the professions, noting that the concept of reflective practice is firmly ensconced in the vocabularies of educators and academics.

In the UK, reflective practice is viewed as the dominant model across the post-compulsory sector, including teacher education, higher education, medical and health education (Bleakley, 1999). The Department of Health (1999) implemented reflective practice as an essential dimension of continuing professional development for nurses (Honor Society of Nursing, 2005). Reflective practice is now a term taken for granted within the nursing profession (Honor Society of Nursing, 2005). As Mackintosh (1998) observes nearly every aspect of professional working life in the nursing profession appears to be prefixed by the word *reflect*.

Why has this theory gained such popularity? I begin to consider this question by offering a narrative account that draws on my previous practice in the early 1990s, as an occupational therapist. In my own

practice stumbling upon Schön's (1983, 1987) theory of reflective practice felt like a 'eureka' moment. This was the first theory that spoke to my experience of 'what it was really like' in practice, as well as to the complexity of that experience. As a novice practitioner, enthusiastic to apply the tools of my profession, I was shocked to discover the limits of their applicability and the 'messiness' of the problems I encountered in practice. I could identify with Schön (1992) words: 'when practitioners accept and try to use the academy's esoteric knowledge, they are apt to discover that its appropriation alienates them from their own understandings, engendering a loss of their sense of competence and control' (p. 120). The theory of reflective practice suggested that science and technology alone could not answer all of the problems of practice, a thought that had crossed my practitioner mind but of which at that time it was unthinkable to speak.

This frame of reference further acknowledged reflection on practice as a valid approach to professional development. It encouraged me to explore what was arising within my own experience in practice and affirmed the learning that occurred through a pragmatic dialogue with that experience. In this way, the theory gave legitimacy to the everyday dimensions of my practice and gave me permission to attend to pragmatic dimensions of practice that I judged to be critically important, yet which were beyond those dimensions grounded in scientific evidence. Sandywell (1996, p. xiii) notes that theories can be approached as everyday strategies which individuals use to constitute life into an intelligible order. Similarly, Wenger (1998) highlights the pragmatic value of theory, noting that the concepts we use to make sense of the world direct both our perception and our actions. In my case, the theory of reflective practice assisted me to 're-frame' the issues in a manner that acknowledged the complexity of issues that extended beyond the pre-dominant emphasis on scientific discourse. In this sense, in my own experience it was a 'liberatory' theory, it offered a form of first person action research (Reason & Torbet, 2001), in the sense that it fostered an inquiring approach to my own professional life, and the capacity to assess effects in my practice while acting.

This responsiveness of the theory of reflective practice to practitioner experience has been highlighted in the literature. Wilson & Hayes (2000) note that Schön's analysis of the 'crisis in the professions' remains the single most poignant depiction of the deep crevices between how we think professionals carry out their work and what working conditions are really like. Others have also identified the link to practitioner experience and the critique of positivism as the reason for its popularity. Taylor & White (2000) suggest that the theory's popularity lies in its switch of emphasis from the application of technical knowledge to the (often painful and difficult) minutiae of day-to-day practice. In this way, reflective practice is seen to offer the comfort of dealing with what practitioners regard as the 'real issues', as well as the 'subjective elements' of practice. Newman (1999a) contends that the theory's popularity is linked to Schön's attempt to avoid positivist dichotomies, such as the separation of means from ends, the separation of research from practice, and the separation of knowing from doing. Eraut (1995) links the popularity of the theory to a variety of factors: the reputation of the author, the receptiveness of readers to those particular views at that particular time, the range of exemplars, and the eloquence and persuasiveness of Schön's arguments. He notes that the publication of Schön's work coincided with a growing disillusionment with the role of science and social science, and was directed at a North American academy in which positivism retained a footing never quite acquired in Europe. Similarly, Bengtsson (1995) points out that German and French countries on the continent of Europe have not been dominated by the same positivist orientation as Anglo-Saxon countries. She argues that notions of reflection and reflective practice challenge the strongly instrumentalist view of the relation between science and professional practice that has dominated English-speaking countries.

In summary, there are a number of factors related to Schön's critique of technical rationality that may have contributed to the popularity of the theory of reflective practice. These include the theory's original critique of positivism; the challenge posed to instrumentalist views of the relation between science and professional practice; the recognition of the practi-

tioner's experiences of everyday practice; the theory's responsiveness to practitioners' struggles to grapple with the indeterminate zones of practice (which Schön suggests make up 85% of the practice context); the persuasiveness and eloquence of Schön's writing; and the resonance that his exemplars hold for practitioners. A number of academics have linked Schön's theory to a critique of positivist and instrumentalist perspectives and to greater recognition of day-to-day practice experience. This paper argues that this critique, although rarely made explicit in considerations of reflective practice, is intimately related to the popularity of the theory, and that a critique of technical rationality does not set up an untenable dichotomy between practitioner experience and scientific research.

### Critiques of technical rationality

Schön (1987) defines technical rationality as an 'epistemology of practice derived from positivist philosophy' (p. 3). He writes:

Technical rationality holds that practitioners are instrumental problem solvers. Who select technical means best suited to particular purposes. Rigorous professional practitioners solve well-formed instrumental problems by applying theory and technique derived from systematic preferably scientific knowledge. (pp. 3–4)

The technical-rational approach to decision-making is held as normative in professional life in Western society (Polkinghorne, 2004).

It is worth noting that a growing disillusionment with what Schön calls 'technical rationality' coincides with a crisis of knowledge across a range of disciplines. Such a critique is not new. Over 2000 years ago, Aristotle (1975) distinguished between 'techne' and 'phronesis': technical knowledge and a form of practical wisdom. However, such a distinction appears to have paled in influence with the dawning of a Cartesian sensibility, and a growing reliance on science as the answer to the problems of humanity.

During the course of the 19th century the idea of the scientific method, adherence to which guaranteed truth, became widespread. And various fields in an attempt to legitimate and professionalize their status

embraced objective conduct and scientific method as their *modus operandi* (Natter *et al.*, 1995). From the middle of the 19th century and continuing into the 20th, a cadre of scientists and philosophers attempted to codify an objective scientific method and thereby provide an epistemological blueprint for the human sciences. Among most scholars, there was little doubt that the human sciences should adopt such an approach. This favouring of objective scientific method as an approach to human sciences reached a highpoint in the 1930s in the epistemological treaties of the Vienna school of theorists (e.g. Karl Popper, Rudolf Carnap, and Otto Neurath), whose 'nomological-deductive' method informed epistemological discussions well into the 1970s (Natter *et al.*, 1995). Thus, during the greater part of the 20th century, the scientific method has reigned supreme.

In the last century and particularly in the last 50 years, vigorous and persuasive attacks have been launched upon the assumptions on which social and scientific theories and foundational knowledge have been based, as well as on the limitations of instrumental approaches to solving problems. For instance, almost a century ago Husserl (1970), in *The crisis of european sciences and transcendental phenomenology*, was concerned that the role of the lifeworld had become obscured by the dominance of an objectivist conception of science. In response, he expanded the notion of science to a phenomenological one that included a science of the lifeworld.

Other critiques are evident within anti-foundational philosophy (Rorty, 1979; Taylor, 1991), philosophy of science (Kuhn, 1962; Feyerabend, 1975, 1993; Maxwell, 1984), continental philosophy (Heidegger, 1962; Husserl 1999; Merleau-Ponty, 1962; Gadamer, 1975, 1992), philosophical linguistics (Bakhtin, 1981), social theory (Latour & Woolgar, 1986; Toulmin, 1990; Ralston Saul, 1992; Sandywell, 1996), critical theory (Habermas, 1972; Horkheimer & Adorno, 1972), physics (Bohm & Hiley, 1993; Bohm, 1996) feminist theory (Hekman, 1990; Haraway, 1991; Harding, 1991), post-structuralist and post-modern theory (Lyotard, 1979; Foucault, 1974, 1980; Derrida, 1988), and post-colonial theory (bell hooks, 1989; Collins, 1990; Spivak, 1990).

While these critiques are posited with varying emphasis within academic environments and reflect

significant philosophical differences that cannot be glossed over, the broad range of locations from which a critique of 'technical rationality' is put forward is worthy of attention. While professional practitioners possess the lived experience of applying theories grounded in technical rationality to practice, they rarely have the time, the forum, the opportunity, or the language to participate in these specialized conversations. Perhaps the popularity of Donald Schön (1983, 1987) 'reflective practitioner' is born out of this tension. Professional practitioners, caught in a gap between their lived experience of practice and the limitations of the discourse of scientism as the dominant way to grapple with problems, are perhaps relieved to discover the language of 'reflective practice'. This discourse questions the dominant paradigm and re-frames issues in a manner that is accessible, that acknowledges the complexity of practice, and considers the experiences of practitioners. Indeed, such a view is consistent with Newman (1999b) contention that the dominant theme of Schön's critique is that in one way or another technical rationality 'ignores or violates actual experience' (Schön, 1966, p. 76; Schön, 1969, p. 45).

### The epistemology of reflective practice

Schön flips the traditional epistemological position of technical rationality on its head by asking what would happen if we began to think about professional knowledge as developing from the perspective of the practitioner, and as revealed in the pragmatic competencies reflected in practitioner action. This is significant as professional practice environments have tended to emphasize approaches to professional knowledge grounded in objective knowledge and science along with the belief that such approaches can solve all of the problems of practice. As Schön (1983) observes, 'in the second half of the twentieth century we find in our universities, embedded not only in men's [women's] minds but in the institutions themselves, a dominant view of professional knowledge as the application of scientific theory and technique to the instrumental problems of practice' (p. 30). Schön questions this emphasis on 'technical rationality' and

its appropriateness for professional practice. He notes that traditionally professional education has been based on a model in which practitioners are instrumental problem solvers who select the technical means best suited to particular purposes. In what has now become a classic image, he contrasts the high hard ground with the messy indeterminate low ground of practice:

In the varied topography of professional practice, there is a high hard ground overlooking a swamp. On the high ground, manageable problems lend themselves to solution through the application of research-based theory and technique. In the swampy lowland, messy, confusing problems defy technical solution. (Schön, 1987, p. 3)

Schön quoting a physician suggests that perhaps only 15% of practice responds to the application of black and white technical or scientific solutions, whereas the majority of problems (85%) are 'not in the book' and occur in what he refers to as 'indeterminate zones'. Schön (1983, 1987) posits an epistemology that begins in this swampy lowland – in these 'indeterminate zones'. He notes that practice is characterized by uncertainty, uniqueness, instability, and value conflict and that practitioners bound by a positivist epistemology find themselves caught in a dilemma. Their definition of rigorous professional knowledge excludes phenomena that they have come to see as central to their practice. He notes that the model of technical rationality fails to account for practical competence in divergent situations.

By acknowledging practitioner experience, Schön's (1983, p. 49) 'epistemology of practice' inquires into what happens when one attends to pragmatic competencies in professional life. He views the practitioner as an agent/experient, and suggests that through transaction with the situation, the practitioner shapes it and becomes part of it. The sense that the practitioner makes of the situation must include her or his own contribution to it (Schön, 1983, p. 163). By drawing attention to practitioner experience, Schön, emphasizes what Hunt (1987) has referred to as an 'inside-out' approach, as a complement to an 'outside-in' approach. Schön (1983) posits a new epistemology of professional practice:

If the model of Technical Rationality is incomplete, in that it fails to account for practical competence in 'divergent' situations, so much the worse for the model. Let us search instead for an epistemology of practice implicit in the artistic, intuitive processes which some practitioners do bring to situations of uncertainty, instability, uniqueness, and value conflict. (p. 49)

Schön's attention to practitioner experience and to an epistemology of practice that begins in the active processes that practitioners bring to the complexity of practice offers a crucial and pivotal challenge to traditional conceptions of professional knowledge.

### Epistemological parallels with Dewey

This emphasis on practitioner experience marks a clear parallel with the epistemological position of John Dewey. Both Dewey and Schön posit an epistemological view that challenges a traditional scheme and moves from a consideration of knowledge as generated outside the individual, to one in which the individual is intricately intertwined. Indeed, Schön has publicly acknowledged his intellectual debt to Dewey. In 1954, Schön completed his doctoral dissertation *Rationality in the Practical Decision-Process* on Dewey's (1938a) *Logic: The Theory of Inquiry*. In a 1992 paper in which he reflects on Dewey's legacy, Schön (1992) states that in the midst of writing *The Reflective Practitioner*, he realized that he was reworking Dewey's theory of inquiry by adopting *reflective practice* as his own version of Dewey's *reflective thought* (p. 23). In a sense, Schön does for professional practice what Dewey did for education; he draws attention to the experiential world of the practitioner in the way that Dewey drew attention to the experiential world of the child, pointing to the relevance of such worlds for knowledge development.

A connection between Dewey and Schön is often made in the literature. Many papers about reflective practice include a description of reflection that draws on Dewey, usually citing one of two classic books: *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process* (1933) or *Experience & Education* (1938b).

### Progressive education and epistemology

Dewey (1938b) describes a view of traditional education, which he contrasts with progressive education. In the traditional scheme 'the subject matter of education consists of bodies of information and skills that have been worked out of the past; therefore, the chief business of the school is to transmit them to the new generation' (p. 17). The focus is on imposition of knowledge from above and from outside the individual learner. In contrast, he posits what he calls a progressive view:

To imposition from above is opposed expression and cultivation of individuality; to external discipline is opposed free activity; to learning from texts and teachers, is opposed learning from experience; to learning of skills and techniques, is opposed learning towards ends; to learning for future is opposed learning for present life; to learning static aims and materials is opposed acquaintance with a changing world. (Dewey, 1938b, pp. 19–20)

Schön has introduced a similar juxtaposition into ways of thinking about professional knowledge, yet has taken it one step further by combining his emphasis on experience with a critique of positivism. As mentioned earlier, he notes that traditionally professional education has been based on a positivist model, in which practitioners are instrumental problem solvers who select technical means best suited to particular purposes. Schön points to the irony of the dominant focus on the high hard ground of technical rationality in light of the nature of practice.

The irony of this situation is that the problems of the high ground tend to be relatively unimportant to individuals or society at large, however, great their technical interest may be, while in the swamp lie the problems of greatest human concern. The practitioner must choose. Shall he [she] remain on the high ground where he[she] can solve relatively unimportant problems according to prevailing standards of rigour, or shall he [she] descend to the swamp of important problems and nonrigorous inquiry? (Schön, 1987, p. 3)

Schön (1983, 1987) posits an epistemology that begins in the swampy lowland of practice, where relevance becomes fundamental. He argues that greater attention must be focused on problem setting, as

opposed to instrumental problem solving. Schön notes that debates involve conflicting frames, not easily resolvable, if resolvable at all, by appeal to data. He writes: 'Those who hold conflicting frames pay attention to different facts and make different sense of the facts they notice. It is not by technical problem solving that we convert problematic situations to well formed problems; rather, it is through naming and framing that technical problem solving becomes possible' (Schön, 1987, p. 5). Schön suggests an epistemology that begins in the spontaneous, intuitive performance of actions, and reflection in and on those actions, within everyday practice. Such an epistemology begins with the practitioner's reflective conversation with practice, rather than with the application of technical knowledge to instrumental problems. This position may be compared with the 'progressive' view that Dewey proposed, half a century earlier, in the sense that the experience of the learner becomes of paramount importance. The implications for professional education are profound; yet the irony is that 'in everyday institutional life, technical rationality is resurgent' (Schön, 1992, p. 120).

It is important to note, however, that according to Schön (1992) his own perspective is distinct from Dewey's in the sense that it embodies a critique of positivism and adopts a stronger constructivist orientation than Dewey's perspective.

### Experience and epistemology

Both Dewey and Schön posit a strong link between personal experience and education within their epistemological position. Dewey (1938b) explicitly lays out this assumption in his book: *Experience and Education*. He writes, 'I assume that amid all uncertainties there is one permanent frame of reference: namely the organic connection between education and personal experience' (p. 25). Indeed, he goes so far as to say that *all* genuine education comes about through experience.

Dewey (1938b) puts forward two principles of an education based on experience, the principle of continuity and the principle of interaction. The principle of continuity 'means that every experience both takes up something from those which have gone before and

modifies in some way the quality of those which come after' (p. 43). This principle highlights the temporal and contextual quality of experience. The principle of interaction suggests that 'an experience is always what it is because of a transaction taking place between an individual and what, at the time, constitutes his environment' (p. 43). These two principles are not separate but intercept and unite with one another. Dewey suggests that the problem of traditional education is its failure to consider the powers and purposes of the learners in creating educational experiences and learning environments. He suggests that 'every experience should do something to prepare a person for later experiences of a deeper and more expansive quality' (p. 47). In this way, Dewey highlights the link between present experience and future experiences. He writes, 'Just as no man lives or dies to himself, so no experience lives or dies to itself. Wholly independent of desire or intent, every experience lives on in further experiences' (p. 27).

Similarly, Schön's epistemology is grounded in reflection in the midst of and retrospectively on the experience (he uses the word practice) of the practitioner. His programme highlights the temporal quality of reflection and experience. Indeed, closely aligned with Dewey's principles of continuity and interaction is Schön (1983) notion of reflective conversation:

In a practitioner's reflective conversation with a situation that he [or she] treats as unique and uncertain, he functions as an agent/experient. Through his transaction with the situation, he shapes it and makes himself a part of it. Hence, the sense he makes of the situation must include his own contribution to it. Yet he recognizes that the situation, having a life of its own distinct from his intentions, may foil his projects and reveal new meanings. (p. 163)

One can see Dewey's work as an implicit underpinning, as forming an assumptive backdrop within Schön's epistemology of reflective practice and his notion of reflective conversation. Schön highlights the agency of the practitioner and his or her role as experient. He points out that the professional is in a transactional relationship with the situation; the knowledge that emerges is a continuation of what has gone before in the life of the practitioner, yet it is

somehow pregnant with new possibilities that emerge from the practitioner's encounter with the situation itself. In this way, Schön reframes professional knowledge as beginning with the experience of the practitioner, and as embodying characteristics akin to Dewey's notions of continuity and interaction.

### Indeterminate zones and epistemology

In *Logic: The Theory of Inquiry*, Dewey (1938a) suggests that the process of inquiry begins with a problematic or indeterminate situation such as a troublesome event or experience or an unsettling situation that cannot be resolved using standard procedures. He notes that the indeterminate situation is the antecedent condition of inquiry. Dewey (1938a) writes, 'it is the very nature of the indeterminate situation which evokes inquiry to be questionable; or ... to be uncertain, unsettled, disturbed' (p. 105). Other names that characterize indeterminate situations include 'troubled, ambiguous, confused, full of conflicting tendencies, obscure' (p. 105).

Central to Schön's epistemology of practice is the assumption that there are indeterminate zones of practice which practitioners must negotiate. According to Schön (1983), 'the situations of practice are not problems to be solved but problematic situations characterized by uncertainty, disorder, and indeterminacy' (pp. 15–16). Furthermore (as mentioned earlier), he suggests that the majority of practice is characterized by such indeterminate zones, situations that are not 'in the book' and which do not respond in clear-cut ways to the application of technical or scientific evidence.

Schön (1983, 1987) suggests that, in practice, reflection often begins when a routine response produces a surprise, an unexpected outcome, pleasant or unpleasant. The surprise gets our attention. When intuitive, spontaneous performance yields expected results, then we tend not to think about it; however, when it leads to surprise, we may begin a process of reflection. Schön notes the active role of the practitioner in setting the parameters of what will be considered within the indeterminate zones of practice. This act he calls 'problem setting', which he opposes to 'problem solving'.

In a footnote in his classic work *The Reflective Practitioner*, Schön (1983) acknowledges that the notion of an indeterminate situation is one he borrows from Dewey. Furthermore, the stimulus for Schön's conception of reflection itself begins in the notion of *indeterminacy* that he draws from Dewey's (1938a) *Logic: The Theory of Inquiry*.

### Technical rationality and experience: duality or not?

Reflective practice in a broad philosophical sense offers a critique of technical rationality as the dominant approach to professional knowledge. As related but distinct critiques of objectivism, scientism and foundationalism are taken up in numerous fields, I suggest that Schön has tapped into an underlying epistemological revolution of sorts occurring at many levels within academic disciplines, departments, and society itself – a revolution in thinking about professional knowledge that parallels the revolution that Dewey initiated in the education of children. At the centre of this revolution is the problem of the exclusion of the 'experience' of the practitioner, or what others have referred to as 'embodied' (Varela *et al.*, 1991) or 'situated' (Haraway, 1991) knowledges from traditional conceptions of what it means to know. Schön's analysis highlights the inappropriateness of an exclusive emphasis on technique and science with respect to approaches to solving the problems of practice.

One question that emerges in response to Schön's work is whether his critique of technical rationality sets up a false dichotomy. Is his theory simply a negative critique that dismisses technical rationality and sets up a valorization of practitioner experience? Carson (1997) has pointed out, that by articulating an opposition to technical rationality and by expressing an alternative to it, reflective practice is in danger of becoming interpreted as a new master discourse that is distinguished from the old master discourse of technicism. As such, a dichotomy is created and a number of critiques of Schön's theory have been mounted along this line. For instance, Fenstermacher (1988) claims that 'Schön has offered us an either-or description of a situation that is actually "both-and"' (p. 44),

in that both technical rationality and an epistemology of practice can contribute to each other. Likewise Shulman (1988) suggests that Schön sets up a dangerous dichotomy and that a third book that resolves this dichotomy is required. While I concur with Shulman that such a book would be useful, I also suggest that an interpretation of reflective practice that views it primarily as a theory that sets up a dichotomy between technical rationality and an epistemology of practice is an oversimplified interpretation. Such a perspective adopts Schön's critique of technical rationality without imbuing it with the multiple dimensions of his theorizing. Grimmett (1988) has picked up on this subtlety noting that 'Schön uses technical rationality as a rhetorical device to portray the unmindful aping of natural science paradigms in the social sciences (sometimes referred to as scientism) that seems so pervasive in the professional schools of universities' (p. 25). Such a critique of the 'unmindful' application of natural science paradigms to social and applied health science settings is quite distinct from a proposal for a wholesale abandonment of science or technique in favour of practitioner experience (as Schön's position has sometimes been interpreted).

While Schön critiques technical rationality, he does not dismiss science or technique as irrelevant, nor does he call for the polar extreme, which Harvey (1993) refers to as 'vulgar situatedness'. I suggest that Schön's position is not akin to the absolute opposite of technical rationality but rather is more complex and subtle. In light of the various strains in his work, I suggest that what Schön is attempting to highlight is related to perspective, or degree, and that his critique of technical rationality is quite distinct from a critique that posits science and technique as irrelevant to practice. As I have emphasized earlier, Schön suggests that a large percentage of practice does not respond directly to the application of scientific or technical knowledge. If this assumption is accepted, the question of why technical rationality has come to be emphasized as the sole path to the resolution of professional problems becomes acutely relevant. What Schön illuminates is the futility in professional education of looking to technique or science as the *sole* avenue for resolution of practice dilemmas. Further, he illuminates the backwardness of devaluing



the role of the practitioner as an agent who actively constructs and makes judgements about what he or she will attend to in practice and who actively tests out various actions in practice. Schön highlights the agency of the practitioner. He does not, however, deny that some situations *do* respond directly to technical or scientific knowledge nor does he deny that some situations respond indirectly. He does call into question the usefulness of a simple 'off-the-shelf' 'mindless' 'recipe' mentality with respect to its application. Further, he critiques the obliteration of the practitioner's experience from conceptions of professional knowledge. As well, he critiques the neglect of the practitioner's active role in setting the boundaries of the problems of practice and the lack of attention to the intelligence that is revealed tacitly through successful action in practice. By invoking Ryle (1949) in his writing, Schön draws attention to the false dichotomy set up between propositional knowledge 'knowing that' and what Ryle has called 'knowing how'. This does not, in my reading, suggest that there is never a place for 'knowing that' but rather that 'knowing how' requires greater emphasis than it has received in past conceptualizations. By drawing attention to tacit knowledge, Schön does not dismiss intentional reflection, or other forms of more conscious knowledge; rather he draws attention to a dimension that has been under-represented in light of technical rationality. Eraut (1995) has summarized what he perceives as a 'generous interpretation'. He writes:

A generous interpreter of Schön might argue that he is not discarding research-based professional knowledge but challenging inflated views of its practical significance. In particular he is attacking the ideological exclusivity of a paradigm in which only knowledge supported by rigorous empirical research is accorded any validity. (p. 10)

One area where Schön clearly does set up a dichotomy is in his discussions of constructivism and objectivism. Schön is undoubtedly a constructivist at heart (Kinsella, 2006); yet this does not imply that the practitioner who is actively constructing and framing the situations of practice never appeals to technical or scientific information in constructing his or her versions of the world. I suggest that Schön's critique of 'objectivism' is sometimes conflated with his critique

of 'technical rationality', yet can also be interpreted as a critique of a paradigm that ignores the actual experience of the practitioner in light of conceptions that valorize disembodied, objective knowledge.

While Schön critiques technical rationality, and while he dichotomizes constructivism and objectivism in setting up his arguments, his solution is not the abandonment of technical or scientific dimensions. Rather, he suggests a more artful, reflective, contextualized, and selective application, when appropriate, that begins in the epistemology of practice that he writes about. This is not a matter of either/or. At issue is a matter of accent and illumination of the practitioner's agency with respect to the artful application of technical as well as other dimensions in the midst of exceedingly complex and uncertain practice situations. Schön highlights the significance of practitioner experience and of the practitioner's active construction of and conversation with the situations of practice. Implicit in this is a focus on practitioner interpretation. Schön emphasizes that practitioners test out and experiment with various approaches in such a way that practice itself gives pragmatic feedback to the practitioner, which he or she must attend to in order to deal with the situations that emerge in practice.

Schön's (1987, p. 14) question about how education for artistry can be made 'coherent' with the professional curriculum's core of applied science and technique is a crucial one. Rather than setting up a dichotomy, such a question invites both science and practitioner artistry into the discussion, and reveals Schön's acknowledgement of both dimensions as relevant to conceptualizations of professional knowledge. This is not to say that the 'construction' of scientific knowledge is non-problematic in Schön's view; however, unlike those who work in the sociology of scientific knowledge (Feyerabend, 1975, 1993; Latour & Woolgar, 1986; Ashmore, 1989), this is not an area of critique to which Schön addresses his attention.

## Conclusion

The theory of reflective practice has gained unprecedented popularity in the professional discourse of

nursing and other health professions; yet there is considerable confusion surrounding interpretations of reflective practice and little discussion of epistemological assumptions within the theory. In this paper, I have suggested that a broad underlying epistemological challenge that Schön brings to the professions, including the health professions, is a critique of technical rationality. Part of the conceptual confusion surrounding Schön's work may well be related to a widespread failure to acknowledge this important epistemological position and the challenge that such a position poses to conceptions of professional knowledge informed by positivist philosophy and the assumptions of technical rationality.

An interesting tension exists in that an increasing number of service-based professions adopt the language of science, technology, and evidence-based practice to validate their status (Harris, 1992). At the same time, deep critiques in approaches grounded solely in technical rationality, instrumentalism, and positivist philosophies have emerged in various fields. Schön's critique appears to have tapped into a theme that is resonating deeply within our culture at this point in history, and offers a balance to perspectives grounded solely in technical rationality.

On its own such a position appears to set up a dichotomy between technical rationality and personal experience, a dualism rather than a both/and position. I argue, however, that Schön's position is not a dichotomous one. Rather I concur with what Eraut (1995) calls a generous reading of Schön, that he is not discarding research-based professional knowledge but challenging inflated views of its practical significance. I suggest that Schön reveals the significance of practitioner experience and the indeterminate contexts of practice as a counterbalance to, not a substitute for, science and technique, and in this way moves towards overcoming dualistic thinking as it pertains to professional knowledge. This discussion has important practical implications for those who adopt reflective practice as it progresses understanding of its epistemological assumptions in a way that may be useful for those applying it in practice. The discussion is also relevant to those who dismiss reflective practice as anti-scientific or as an extreme form of epistemological relativism. As has been shown in

this paper, a considered reading posits a more nuanced interpretation.

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