Rethinking reflective education: What would Dewey have done?

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SUMMARY

Reflective practice has largely failed to live up to its promise of offering a radical critique of technical rationality and of ushering in a new philosophy of nursing practice and education. I argue in this paper that the failure lies not with the idea of reflective practice itself, but with the way in which it has been misunderstood, misinterpreted and misapplied by managers, theorists, educators and practitioners over the past two decades. I suggest that if reflective practice is to offer a credible alternative to the current technical–rational evidence-based approach to nursing, then it needs to rediscover its radical origins in the work of John Dewey and Donald Schön. In particular, nurses need to look beyond their current fixation with reflection-on-action and engage fully with Schön's notion of the reflective practitioner who reflects in action through on-the-spot experimentation and hypothesis testing. Finally, the implications of this radical approach to reflective practice are developed in relation to the practice of nursing, education and scholarship, where they are applied to the challenge of resolving what Rittel and Webber refer to as 'wicked problems'.

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Introduction

It is now more than a decade since I made the following observation:

Reflective practice was originally conceived as a radical critique of technical rationality, and was based on the premise that knowledge generated by practitioners reflecting on their own experiences is of at least equal value to knowledge derived by academics from empirical research. However, experiential knowledge from reflection-on-action now finds itself at the bottom of the hierarchy of evidence on which to base practice, and reflection has become just another technical tool.

[(Rolfe, 2002, p.21)]

My prescription for the problem was a return to the roots from which the modern idea of reflective practice originated, in particular the work of John Dewey, Carl Rogers, Paulo Freire and Donald Schön. However, it appears that little progress has been made, and whilst it could be argued that Schön's work was the catalyst for the reflective nursing practice movement and continues to exert a huge influence, I would suggest that it has largely been misunderstood and misapplied. In particular, when Schön writes about what he calls the reflective practitioner, he is not referring to either the idea or the process that has come to be known as reflective practice in nursing and other health care disciplines. Schön is not referring to the retrospective contemplation of practice, not suggesting that we write about our practice, and is not advocating models or frameworks to structure our reflection. For Schön, reflective practice is something that we *do*, not something that we sit down afterwards and think about. Reflective practice means

reflection *in* practice, or what he more usually refers to as reflection-in-action. What he calls reflection-on-action, which appears to have seized the imagination of nurses and other health care practitioners, hardly warrants a mention in either of his two seminal books.

The problem for nursing, which I attempted to highlight back in 2002, is that there is nothing in the idea of reflection-on-action that offers a credible challenge to the dominant technical–rational paradigm of evidence-based practice. That is to say, if we regard reflection simply as a way of generating knowledge about our practice by thinking about it retrospectively, then that knowledge will always find itself at the very bottom of the hierarchy of evidence alongside personal experience and unsubstantiated belief. So long as the dominant model of health care demands that practice should be determined by research-based evidence, preferably derived from quantitative data, then experiential knowledge will never be taken seriously.

This paper will offer a radical reappraisal of reflection and reflective practice in an attempt to establish it on a firmer footing. The word radical derives from the Latin *radix*, meaning roots. Taking a radical view of reflection therefore means exploring its origins, and its modern-day use originates in the work of John Dewey from the early years of the 20th century. On the face of it, Dewey's ideas appear far from radical. Dewey uses the words 'reflection' and 'thinking' more or less interchangeably, which is perhaps why reflection is often regarded as little more than thinking about our experiences. However, Dewey was a pragmatist philosopher and a practical educator, and his notion of *thinking* is intricately connected to *doing*. For Dewey, reflection is not simply having an experience and then going home to think about it. On the contrary, thinking is an active process that involves forming hypotheses and trying them out here and now in the real

world. Thinking or reflection is therefore a form of experimentation. We cannot reflect in an armchair; reflection can only take place in practice; reflection, in Dewey's words, involves:

> Doing something overtly to bring about the anticipated result, and thereby testing the hypothesis.
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> [(Dewey, 1916, p.115)]

It might seem odd to think of reflection as a way of *doing* rather than as a way of thinking. However, Dewey's description of reflection is more or less identical to what Schön would later refer to as reflection-in-action or simply as reflective practice, which he described as 'a reflective conversation with the situation' (Schön, 1983, p.163). Reflective practitioners reflect on-the-spot, in the here-and-now, and the products of their reflections are immediately put into practice in a continuous and spontaneous interplay between thinking and doing, in which ideas are formulated, tested and revised.

Practice: Wicked Problems and On-The-Spot Experimenting

It might be argued that this is an outmoded approach to practice in the age of evidence-based nursing, and that nurses no longer need to engage in a reflective conversation with every situation they find themselves in; that they simply need to apply the best evidence from research. Schön referred to the application of research-based theory to practice as technical rationality, where university-based technologists generate knowledge for practice-based technicians to apply. Technical rationality is a useful model for practice when situations are simple and straightforward and where the same solution can be expected to work in every instance. For example, if a patient presents with the signs and symptoms of a chest infection, then the treatment intervention and the care pathway will be the same in almost every case. In these situations, there is a standard procedure, usually based on best evidence from research that is more or less guaranteed to work. However, many situations that we encounter as practitioners are not easy to diagnose and, once diagnosed, not simple to treat. Many include complex physical, psychological, social and personal interactions, and many do not have straightforward solutions, if indeed they have solutions at all. And even when they do, it is not always easy to specify if and when the problem has been resolved.

In the 1960s Rittel and Webber coined the term 'wicked problems' to refer to these complex, multifactorial situations. These problems are wicked in the sense that they resist and defy our attempts to formulate, tackle and resolve them, and stand in contrast to 'tame problems' which can be solved simply by the application of a technical–rational standard procedure based on best evidence. Rittel and Webber (1973) were writing about problems in the field of social planning, but Conklin (2006) generalised the idea of a wicked problem to other disciplines. For Conklin, a wicked problem cannot be fully understood until after we attempt to solve it, we will never know for certain if and when it has been resolved, and there is rarely a 'right' solution which is acceptable to all of the stakeholders. Furthermore, wicked problems are, by definition, unique and we only get one attempt at tackling them. They are not amenable to off-the-shelf evidence-based solutions and our experience from dealing with similar problems in the past will be of limited value. Whereas reflection-on-action after the event might help us to pinpoint where we went wrong on this occasion, it will not help us to deal with future wicked problems.

Whilst some of the issues that nurses are called upon to deal with in their everyday practice are simple, straightforward and relatively 'tame', many fit the above description of wicked problems. For example, nurses are sometimes called upon to comfort a bereaved friend or relative of a deceased patient. The solution to the problem of how best to respond will not be found in a text book. Different people will react differently to different approaches and the nurse will not know how effective any particular intervention is likely to be until after she has attempted it.

The nurse has only one shot at getting it right and her previous experiences with other bereaved individuals will be of only limited value in this unique situation. And, of course, there is no definitive point at which the nurse can feel satisfied that the problem has been fully resolved.

Reflective practice, in Dewey and Schön's sense of experimenting-in-action, is our best hope in dealing with the kinds of wicked problems which nurses and other health care practitioners are increasingly faced with in an ever more complex and demanding health service in which our relationships to technology, treatments and service users are being constantly challenged and redefined. Therefore, in order to respond effectively to wicked problems, practitioners need to reconsider their relationships with academics, researchers and service users. The traditional technical–rational model is based on a hierarchical relationship in which technologists hand down their prescriptions for best practice to technicians, who then apply them to objects in the material world. If the technologists are civil engineers and the technicians are constructing a bridge, then the technical–rational model ensures that the bridge will be properly designed and built. If the technologists are bio scientists and the technicians are pharmacists, the technical–rational model will ensure that the medications are safe and effective. And for some of the more technical procedures that health care practitioners are called on to perform, the evidence-based technical–rational model ensures the delivery of good and consistent care. That is to say, the technical–rational model works well for tame problems which have a clearly defined outcome and a standard procedure which can be mapped out in a care pathway.

However, I would suggest that many of the problems we are faced with as nurses are of the wicked type for which no amount of theory or research evide;nce can ever prepare us. In order to address these challenging wicked problems, nurses must become their own theorists and researchers by generating hypotheses and testing them out on-the-spot in the form of practice interventions. As Schön tells us:

> When someone reflects-in-action, he becomes a researcher in the practice context. He is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case … Because his experimenting is a kind of action, implementation is built into his inquiry. Thus reflection-in-action can proceed, even in situations of uncertainty or uniqueness, because it is not bound by the dichotomies of technical rationality.
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> [(Schön, 1983, pp. 68–9)]

Rittel and Webber (1973) argued that the crucial relationship for dealing with wicked problems is that between the planner and clientele (or in our case, practitioner and service user) that will lead to a joint decision to try a particular course of action. However, it is important to remember that wicked problems involve multiple stakeholders, each with their own values and criteria for what counts as a 'good enough' resolution, so rather than entering into a one-way hierarchical relationship between the technologist and technician, the practitioner must form partnerships with service users and other stakeholders based on mutual respect and trust. The practitioner and service user must reflect-in-action together by generating and testing ideas and theories and arriving at a solution that is jointly agreed and accepted.

Clearly, this is easier to achieve in some settings and circumstances than others. In my own field of mental health nursing, such therapeutic partnerships are not uncommon. Patients are often actively involved in their own treatment programmes, and interventions such as cognitive behavioural therapy depend for their success on a therapeutic liaison in which the patient takes the lead in identifying the problem, formulating the treatment plan and evaluating the outcome. The therapeutic encounter takes the form of a puzzle which the nurse, patient and others address together by experimenting-in-action with different interventions. In other areas of practice such as intensive care nursing, options and opportunities will be more limited. In line with current thinking

and recent recommendations in health care services, we must resist the technical–rational tendency to regard patients and service users as objects to be acted on. We should see them rather as active and autonomous partners with whom we form therapeutic relationships in order to address and resolve the unique and complex wicked problems that they present with. I am not suggesting that there is no place for retrospective reflection-on-action. Of course, we can reflect on our performance and we can reflect on the process of reflection-in-action, but the primary therapeutic nursing intervention for complex wicked problems usually has to be worked out on the spot.

Education: Burnt Fingers and Reflective Practicums

Educators, like nurses, are practitioners who have to deal with their fair share of wicked problems. The above discussion of reflective practice in nursing therefore applies to education, which can similarly be regarded in relation to reflection-in-action. As in the case of service users and providers, this would entail being more responsive to our students than we might otherwise be and entering into active partnerships with them in a joint commitment to resolve practice-oriented educational problems through a process of on-the-spot experimenting. And just as the problems faced by nurses are becoming increasingly wicked, so are those faced by educators. The primary task of reflective educators is therefore to form partnerships with their students in order to identify what they see as their learning needs and problems; to try out and appraise novel and individualised responses aimed at meeting those needs, and to arrive at a mutual agreement about what might constitute a resolution. Rather than regarding education as a technological intervention based on the technical–rational model, with learning outcomes, teaching methods and assessment schemes laid out in advance, learning becomes a joint enterprise which requires a personal and individual partnership between tutor and student. Of course, we cannot completely escape from predetermined learning outcomes and summative assignments, but we can at least enter into educational relationships with our students in which actual problems from practice can be debated and addressed together.

This is not a new idea, but a return to the ideals of previous generations. It is now more than 200 years since Wilhelm von Humboldt described the university as a place where students and teachers work together 'in the common pursuit of knowledge'. Fifty years later, John Henry Newman supported the idea of a university as bringing young men together in order to talk and listen to one another, and was critical of recent trends for having to study particular subjects in order to pass exams. Michael Oakeshott spoke in 1950 of the university as a place where the student 'has the opportunity of education in conversation with his teachers, his fellows and himself' (Oakeshott, 1950, p.113). Similarly, F.R. Leavis disliked the word 'teaching' because of its suggestion of 'authoritative telling' and recommended that it be placed in inverted commas. For Leavis, the university lecturer:

tests and develops in 'teaching' his perceptions, understanding and thought, and with good men [students] may do so very fruitfully. For what we call teaching is, if genuine, a matter of enlisting and fostering collaboration….

[(Leavis, 1969, pp. 65–6)]

That is to say, the university has traditionally been a place not of research, not of teaching, but of *learning*; not a place where the solutions to tame problems are passed from teacher to student, but where wicked problems are tackled together in a spirit of mutual learning and understanding. Most of the practice problems that our students bring to us are wicked; tame problems are generally resolved in the practice setting by the application of best evidence. And as we have seen, wicked problems are unique, unpredictable, and can only be formulated once we begin to address them. There are no predetermined solutions to wicked

problems; rather, we learn together to solve them on the spot in conversation with our students.

Unfortunately, whilst the problems faced by nurses are becoming more and more wicked, our educational responses appear to be shifting towards tamer and less complex issues and interventions. In particular, many of our universities have separated the process of discovery from that of learning. Students and teachers no longer learn and discover together; lecturers conduct research which is often commissioned and financed by outside agencies, and pass on their finding to their students in a process of so-called 'research-based teaching'. Student expectation is increasingly centred around the requirement to assimilate facts and to pass exams, and some lecturers appear to regard students as a hindrance to their pursuit of new knowledge through research rather than as partners in a joint quest. It is not uncommon for senior academic staff to be excused from teaching duties in order to focus on their research. Even 50 years ago, this would have been quite literally inconceivable; teaching *was* research, and a doctorate, which is now widely regarded as a research degree, was then seen as a qualification for teaching.

Donald Schön recognised in the nineteen eighties that higher education was no longer meeting the needs of the practice disciplines such as nursing, pointing out that 'what aspiring practitioners need most to learn, professional schools seem least able to teach' (Schön, 1987, p.8). Schön's great insight was to recognise that professional schools were unable to teach what practitioners most needed to learn because what they needed to learn was fundamentally unteachable. He argued that practice knowledge was mostly tacit and mostly learned on-the-job through experimenting in action. Like Rogers and Dewey before him, Schön believed that the role of the educator was not to teach but to facilitate learning.

John Dewey outlined this approach in his book *Democracy and Education*, first published almost a century ago in 1916. Dewey is usually credited with popularising the idea of learning through experience, but it is more accurate to think of his approach as learning through experimenting. For Dewey, an experience is not merely something that happens to us, nor is it simply a term for anything and everything that we do. As he says: 'Mere activity does not constitute experience' (Dewey, 1916, p.107). Rather:

To 'learn from experience' is to make a backward and forward connection between what we do to things and what we enjoy or suffer from things in consequence. Under such conditions, doing becomes a trying; an experiment with the world to find out what it is like; the undergoing becomes instruction—discovery of the connection of things. (Dewey, 1916, p.107)

Reflective learning is more or less the same process as reflective practice; we learn by trying things out and seeing what happens. Dewey saw no real difference between reflective thinking, education and research. He argued that we should not think of research as the particular prerogative of scientists, academics and doctoral students and claimed that reflective thinking is research, 'even if what [the thinker] is looking for everybody in the world is already sure of' (Dewey, 1916, p.113). In other words, research is defined in terms of process rather than outcome. It is a way of thinking and acting on the world and should not be thought of simply as the generation of new knowledge. In any case, Dewey argued that knowledge is not a thing but an action or a relationship. It is a verb rather than a noun. Knowledge is not found in books; it is not something that we can possess or something that one person can pass on to another. It therefore makes little sense to think of education in terms of teaching.

Paulo Freire used a banking metaphor to describe the traditional approaches to teaching, in which the lecturer makes a deposit of knowledge in the memory bank of the student, rendering students as nothing more than 'listening objects' and 'receptacles to be filled by the teacher' (Freire, 1972, pp. 45–6). Carl Rogers wrote similarly about the 'mug and

jug' method of teaching, where the students are all mugs to be filled by the teacher from his 'jug of knowledge'. Unsurprisingly, Rogers suggested that:

> Teaching is, for me, a relatively unimportant and vastly over-rated activity
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> [(Rogers, 1983, p.103)]

and:

> It seems to me that anything that can be taught to another is relatively inconsequential and has little or no significant influence on behaviour.
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> [(Rogers, 1969, p.277)]

Rogers shared Leavis's suspicion of the term 'teacher', and preferred to think of himself as a facilitator of learning and, like Dewey, he believed that all learning originates from experience. We have seen, however, that for Dewey, experience is not something that happens to us; it is an active engagement with the world.

Dewey gives the example of a child who sticks his finger in a candle flame. The learning by the unreflective child from this experience is very limited; he learns only to stay away from flames in the future. However, the reflective child will enter into an active dialogue with the situation. She will quite possibly stick her finger into the flame again, just to confirm her earlier experience. She might then experiment with the situation in order to learn more about flames. She might, for example, hold her finger at different distances from the flame in order to explore the relationship between heat and proximity. She might attempt to protect her hand in different ways and with different materials to explore the notion of the conduction of heat. She might place different objects in the flame to explore the property of flammability. The unreflective child has learnt only to stay away from flames, whereas the reflective child has entered into a relationship with the flame and has educated herself through a process of systematic experimentation and research.

Similarly, the first time that a student nurse has to comfort a grieving relative might result in her (figuratively) getting her fingers burnt by making an inappropriate response. The unreflective student will learn to avoid similar situations in the future, whereas the reflective student will wish to experiment with different approaches, perhaps in role play situations or else in real clinical situations under the close supervision of a mentor. As with the child in Dewey's example, the student will have educated herself through a process of systematic experimentation and research. This is not research in the traditional sense of discovering something that no one else previously knew, but it *is* research-based education insofar as the student has discovered something new to her. Our role as facilitators of learning is therefore to encourage our students to experiment and to play around with new ideas. Unfortunately, this is proving ever more difficult in an educational environment which places more and more emphasis on outcomes and less and less on process, and where our first priority is to coach our students through their exams rather than to engage with them on a joint voyage of discovery.

Carl Rogers suggests that all we need do is to establish a permissive learning environment where students feel free to experiment. Other educationalists have tried to add some structure to this approach through methods such as clinical simulations and enquiry-based learning. Schön refers to these simulations as practicums, which he defines as 'settings designed for the task of learning a practice' (Schön, 1987, p.37). He identified three types of practicum: the classroom, where students learn practice-related theory; the skills lab or simulation suite where they learn to apply this theory in standard and unproblematic ways; and the practice setting, where they encounter the messy realities of real-life problems.

As Schön pointed out, the first two types of practicums fail to address the real issues of practice because they do not adequately reproduce the real problems faced by practitioners. Simulations might help the student to learn the facts, rules and procedures of a particular practice,

they might even help the student to think like a practitioner, but they will not help, in Schön's words, to 'make new sense of uncertain, unique or conflicted situations of practice' (Schön, 1987, p.39), that is, with wicked problems. He claims that practicums which *do* address the messy issues found in the swampy lowlands of practice are rare, but are sometimes found in association with apprenticeships or very occasionally in the clinics, workshops and internships of professional schools. He adds:

> These practicums are reflective in that they aim at helping students learn to become proficient at a kind of reflection-in-action. They are reflective … in the further sense that they depend for their effectiveness on a reciprocally reflective dialogue of coach and student.
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> [(Schön, 1987, p.40)]

In other words, students can only learn to be reflective practitioners when they are *in practice*. This suggests that we might have been wrong to have abandoned the apprenticeship model of nurse education back in the nineteen nineties. One of the problems with the apprenticeship model, and part of the reason why it was replaced, was that the clinically-based nurses who were expected to educate the students were ill-prepared and had no clear idea of their role. Most crucially, they had little or no concept of reflective learning, and it was expected that students would pick up the skills and theories of practice simply by observation and emulation.

However, there is more to learning a practice than simply being there. As Dewey pointed out, it is necessary to actively interact with our environment, and that requires a strong and mutual partnership between student and coach in which the student feels safe to speculate, theorise and hypothesise about care and to test out hypotheses in practice under closely supervised conditions. These first attempts at reflection-in-action should be followed by facilitated periods of reflection-on-action where students are encouraged to pick apart their on-the-spot experimenting. In nursing and midwifery, we often refer to this as clinical supervision.

Such a move to a reflective apprenticeship would require a radical overhaul of the curriculum with more training and support for clinically-based supervisors and more time spent in real-life practice settings. But more significantly, it demands a re-evaluation of the academic status of clinical learning and practice-based experiential knowledge that would place it on an equal footing in the university with theoretical and research-based knowledge. That is to say, colleagues who choose to pursue their research agendas through education and scholarship, who regard students and service users as partners rather than as research objects from which to extract data, and who write and publish for practitioners rather than other researchers should not be disadvantaged in terms of promotion or regarded as second-class academics.

Scholarship: Philosophical Thinking and One-Sided Arguments

Reflective practice, *true* reflective practice, is being squeezed out of our nursing and health care departments as a result of a very narrow and misguided concept of what academic research and scholarship should look like. Reflection is being taught more and more as a technology, as the mechanical application of a model or framework, and reflective writing is being judged and assessed according to rigid guidelines and inappropriate criteria. This is making it more and more difficult for nurse academics to get their work published in the so-called 'top' high impact factor journals, and as a result, reflective scholarship is becoming ghettoised in specialist journals which are read only by the cognoscenti.

There are at least three possible responses to this situation. Firstly, we could heed the growing call for nurse education to get out of the universities and back into the hospitals. However, I think this would be a huge mistake, not least because scientism and academic snobbery is

just as rife amongst clinicians as it is in our universities. Secondly, we could accept and embrace the values of the academy, apply for the big research grants, follow the publishers' rules and guidelines and keep our Vice Chancellors and their growing number of accountants happy. Thirdly, we could take a brave step, academics and practitioners together, and try to assert a scholarship of practice alongside theoretical and research-based scholarship. This is no easy task, but perhaps the hardest part is finding an initial foothold, a position of strength and authority from which we do not have to conform to so-called scientific rigour and apologise when our reflective essays and journal papers break with academic conventions.

Once again, John Dewey offers us a useful perspective in making the distinction between the scholarly practices of what he refers to as science and philosophy. For Dewey, scientific scholarship is concerned with what is already known, that is to say, with established facts. To construct a scientific argument is to pile facts one on top of the other, for example in the form of a systematic review or concept analysis. Similarly, scientific research studies build on existing work in a gradual and incremental way. As Isaac Newton famously wrote in a letter to Robert Hooke: 'If I have seen further it is by standing on the shoulders of giants'. In contrast, philosophical scholarship is grounded in reflective thinking and does not begin with the facts, but with the curiosity and speculation that arise from being confronted with a practical problem or puzzle.

When reflective scholars encounter a problem, they do not synthesize a solution from existing knowledge, but conduct an experiment-in-practice by constructing one or more hypotheses and testing them out through their writing. The result of their reflections is not solid evidence or factual knowledge, but a partially tested hypothesis, that is to say, a hypothesis that has not yet been disproved, which is then offered to other writers and thinkers through publication for further testing. For the scientist, writing is a means of communicating research and scholarly activity; for the philosopher, writing *is* research. Scientists only publish their work once the research is complete whereas the philosopher's publications are always works in progress. Scientist do their thinking and data collection first and then write up their conclusions as a *fait accompli*; philosophers think aloud through their writing. The scientist offers a rounded, well-considered, objective account; the philosopher presents a point of view that is often subjective, biassed and provocative. The scientist tells, the philosopher incites and invites a response. The scientist instructs, the philosopher engages. The scientist prescribes solutions to tame problems, the philosopher invites collaboration to address wicked problems.

The academic discipline of nursing has chosen the model of science over the model of philosophy. That is to say, it has taken the positivist laboratory values of rigour, objectivity and detachment, values that are important to the technologist and the laboratory worker, and applied them to writing and scholarship. Our journals like to present themselves as 'evidence-based' and often impose strict and rigorous (or should that be rigid?) guidelines for authors which leave little scope for modes of writing such as the reflective review, the speculative essay and the impassioned polemic. In doing so, they misunderstand the nature of polemic and its relationship to evidence.

We have seen that philosophical modes of writing such as the polemical essay are not intended to tell but to incite a response, whether thought, spoken or written. Contrary to popular belief, we do *not* write partisan, one-sided accounts (such as this paper) as statements of fact but in order to encourage debate and discussion. Polemic is not evidence; it is the first step in the generation of evidence through ongoing discourse. It is not intended as an answer to a question; it *is* a question. In a technical–rational discipline such as nursing, our academic journals are our main channels of communication; they provide the primary means for technologists to pass on research findings and other types of evidence to technicians. By excluding speculative writing of this sort as unscientific or lacking in rigour and objectivity; by privileging objective, rational, scientific accounts of the world of practice, we also exclude wicked problems that are not amenable to scientific investigation in favour of tame problems that have clearly defined objectives and solutions.

What is to be done? It is not for me to say. This paper has taken the form of a polemic. I have presented a one-sided and partisan account of the situation as I see it. And the point of polemic is not to prescribe solutions, not to answer questions, but simply to raise them and to provoke responses through dialogue. In any case, the problem I have tried to outline is a wicked problem which we will only begin to understand after we begin to tackle it, for which we have no tried and tested solutions and no right answer which will be acceptable to all of the many stakeholders. We have to make up the solution as we go along through a collaborative reflective process of experimenting-in-action. But as with all wicked problems, the first and most important step is simply to make a start.

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