The Death of Theory in Educational Research

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Introduction

A few years ago, I wrote:

> The technological and social success of the natural sciences—particularly the physical sciences, biology and geology—during the 19th and 20th centuries has led to an intriguing consequence: the expansion of rules, modes of discourse and philosophical perspectives from the natural sciences into other discourses and forms of life. Academic psychology's long love affair with the modernist program and with highly generalised rules of cause and effect modelled on the physical sciences (Polkinghorne, 1992) is perhaps the strongest example of this in the 'human sciences', but perspectives from the philosophy of science have also been strong and persistent referents in the literature of educational research. (Geelan, 2001b)

The long love affair with the methods of the physical sciences as the paradigm of inquiry in education is ending with a sense of frustration. Over the past 20 years, the shift to qualitative inquiry has attempted to move educational research from an exclusive concern with Habermas' (1971) 'technical' interest toward his 'practical' human interest. Efforts by Denzin and Lincoln (1994, 2000), among others, have also attempted to incorporate features of the 'emancipatory' interest in educational inquiry. My contention is that these methods are still likely to yield unsatisfying results, because they remain enmeshed within the scientific research paradigm where knowledge is generated by researchers and (intended to be, but not always actually) implemented by practitioners. The resulting 'theory-practice gap' means

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that—I would argue—educational theory has been largely ineffectual in improving educational practice. Major 'reform' movements are frequently grounded in ideology rather than in educational research, at least partly because research is not seen as influential on practice.

There are many plausible explanations for the gap, and blame is apportioned in a number of ways, but I believe that this constitutes a fundamental misunderstanding of the problem. The complexity of classrooms as human environments dooms approaches to improving what goes on in them that subscribe to theory-practice dichotomies. Rather than from the physical sciences, the appropriate models for educational research, I will argue, can be derived from engineering and materials science. The search for powerful, context-sensitive solutions that work in practice, rather than for generalizable knowledge *about* practice is the goal of these modes of inquiry. Taking 'technological problem-solving' as a model for inquiry in educational research has the potential to offer significant practical benefits, and to reunite the twin projects of understanding educational practice and of living it in classrooms in the hands of educators.

In many ways the field of complexity science seems to me to define itself by ostension: not by creating a fixed definition, but by pointing to particular examples—neural networks, cellular automata, genetic algorithms and so on—and saying 'this is a complex system'. For my purposes in this paper, I will be defining 'complexity' in terms of the *irreducible* quality of the things studied: complex systems will be defined as those which are not amenable to reductive analysis. Complexity, in this sense, is not synonymous with complication: a system that is complicated, but able to be simplified by reducing it to simpler elements, would not be considered a complex system under this definition.

One of the challenges with such a definition is that it can sometimes be difficult to decide whether a particular situation is *in principle* complex, or whether it is merely sufficiently complicated that, with our present knowledge and tools, it *appears* to be a complex system. In some ways, though, it doesn't matter for practical purposes in which direction systems on the cusp of this kind of question would fall if we had a 'God's eye view'. If a system is sufficiently complicated that we cannot address it reductively, then the tools and approaches of complexity science may well yield 'ways in' to what would otherwise be intractable problems.

Individual Complexity

The thoughts and behaviour of individual teachers and learners in classrooms is one such phenomenon: while there is a strong intuitive attraction to the idea that human action/cognition (the distinction is an occasionally

useful one that is nonetheless increasingly controversial) is in principle irreducible to simpler elements, and therefore constitutes a complex system, it might also be possible to conceive of an experiment that applies sufficient lifelong surveillance and sufficient processing power to render an individual comprehensible in a reductionistic way. In the absence of confirming evidence in either direction, however, I would argue that there is definitely value in treating teachers and students *as though* they—or at least the things they do, say and think in the classroom—are complex.

Biggiero (2001) claims that human systems do fall under the requirements for complexity:

> Human systems are affected by several sources of complexity, belonging to three classes, in order of descending restrictivity. Systems belonging to the first class are not predictable at all, those belonging to the second class are predictable only through an infinite computational capacity, and those belonging to the third class are predictable only through a trans-computational capacity. The first class has two sources of complexity: logical complexity, directly deriving from self-reference and Gödel's incompleteness theorems, and relational complexity, resulting in a sort of indeterminacy principle occurring in social systems. The second class has three sources of complexity: gnosiological complexity, which consists of the variety of possible perceptions; semiotic complexity, which represents the infinite possible interpretations of signs and facts; and chaotic complexity, which characterizes phenomena of nonlinear dynamic systems. The third class coincides with computational complexity, which basically coincides with the mathematical concept of intractability. Artificial, natural, biological and human systems are characterized by the influence of different sources of complexity, and the latter appear to be the most complex. (p. 3)

That is, Biggiero claims that human systems are the *most* complex systems with which we attempt to come to grips, in terms of all six of the forms of complexity he enumerates.

Classroom Complexity

Beyond the complexity of each individual, of course, there is the complication of the classroom as a social environment. This consists at first in the two-dimensional complication of the possible interactions and relationships between 20–40 people: if we imagine a diagram of a classroom, with a single, simple line joining each person in the room to each other person, the image is already one of a very complex spiderweb of connections and interactions—one in which some threads are much stronger and more structurally important than others, and one that is in constant flux.

In discussing a challenge that arose in my own teaching through insufficient attention to this complication, I wrote:

> The conflicts that arose in the course … arose largely because of the students' perception that I had failed to properly enact my role. My actions and epistemological commitments in the course had contravened the constellation of expectations that, for them, defined 'the role of educator'. In other words … I had attempted to unilaterally change the social structures and interactions of the classroom, and had been 'snapped back into position' by the web of student expectations.
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> We can take this metaphor of a spider's web a little further. Say a spider in my garden has spun a web in such a way that its centre lets the spider sit in the sun during the early afternoon. As the season changes from spring to summer, the sun moves further south [in Australia], and the position no longer catches the sun at the right time. If the spider simply moves to a different spot on the web, it is no longer at the centre. This might seem desirable, except that the edges are less strong and won't take its weight, and the lines it held with its legs telling it when a fly hit the web are out of reach... If the centre is to be changed, laborious reweaving of the whole web is required. Similarly, my move 'out of the centre' damaged the web of expectations and made it dysfunctional. For a functional move, I should have rewoven the web, in collaboration with the group. (Geelan, 2001a)

The spiderweb in this image is one of expectations and beliefs, rather than one of simple interactions and relationships, so in some sense it adds a layer of complication to the web of possible connections between class members. We can imagine the 2-dimensional web of relationships (which is layered on the 1-dimensional 'web' of individual complexity) as moving into a third spatial dimension when we add the expectations of the participants.

Although most educators would assent to the proposition that classrooms are complicated places, I want to claim that there are other dimensions to this complication—not only those introduced by the numerous stakeholders and their interactions, but also the complexity of the beliefs and assumptions that underlie such interactions. To put it another way: most educators are aware of the 'technical' complication of schools (to use Jurgen Habermas' (1971) terms)—the timetable pressures, falling budgets, rising class sizes, and competing demands from governments, parents and employer associations. I am concerned much more with the 'practical' and 'emancipatory' complication and complexity of schools: the variety of competing assumptions and beliefs that can tend to constrain the development of rich communicative relationships in schools.

Mezirow (1981), in describing and interpreting Habermas' ideas and applying them in an educational context, describes them this way:

> Habermas differentiates three generic areas in which human interest generates knowledge. These areas are "knowledge constitutive" because they determine categories relevant to what we interpret as knowledge. They also determine the mode of discovering knowledge and establishing whether

> knowledge claims are warranted. Three distinct but interrelated learning domains are suggested by Habermas' three primary cognitive interests—the technical, the practical and the emancipatory. (Mezirow, 1981, p. 143–144)

Mezirow describes the *technical* mode as being related to the human interest of 'work', the *practical* to 'interaction' and the *emancipatory* to 'power'. The *technical* mode is "based on empirical knowledge, and is governed by technical rules." (Mezirow, 1981, p. 144) This mode is the one used in the natural sciences, and is also the mode on which much of the "process-product" (Shulman, 1986) research on teaching has been based. It is concerned with predictable, observable events, which can be explained or described by general rules. These rules can be discovered through correctly applied quantitative experiments and generalised to similar cases.

> The *practical* mode is concerned with human relationships and communication, with the building of consensual understandings and norms for action. This understanding and mode of inquiry has as its aim not technical control and manipulation but rather the clarification of conditions for communication and intersubjectivity. It is not the methods of the empirical-analytical sciences which are appropriate to this task but systematic inquiry which seeks the understanding of meaning rather than to establish causality. (Mezirow, 1981, p. 144)

Practical actions, therefore, are those which extend human communication and understanding, and allow for the improved construction of shared meanings. The qualitative/interpretive tradition in research on teaching is based on the assumption that humans (both teachers and students) do not fall under the necessary conditions of predictability which are required for research in the objective technical mode, and must therefore be studied in the intersubjective practical mode.

Emancipatory actions involve self-knowledge and reflection on the effects of one's lived experience, and the problematising of power structures with a view to emancipation from their inequities. This mode is related to the empowering of human beings through the critique of ideologies. If including the 'practical' dimension of complication expanded the spiderweb from 2-D to 3-D, adding the emancipatory interest requires a move into the geometry of 4 spatial dimensions! And this 4-dimensional web is historically situated and in constant flux through time, adding a 5th dimension.

Understanding the complication of schools and classrooms at the technical, practical and emancipatory (sometimes also called 'critical') levels begins to suggest that these systems are too complicated for simplistic, reductionistic analysis to be of real value in supporting service to students. That is to say, even if they are not in some final, in principle sense complex systems, they are beyond our *current* ability to analyse reductively, and thus might be amenable to inquiry using the tools of complexity science.

Having claimed that models from the (traditional) natural sciences have not served us well in educational research, and may not have the power to serve us well, I would like to spend a little more time considering such models in detail and exploring that claim.

Models from Philosophy of Science

Alan Chalmers characterises Sir Karl Popper's 'falsificationist' perspective on the nature of science as follows:

> Theories are construed as speculative and tentative conjectures or guesses freely created by the human intellect in an attempt to overcome problems encountered with previous theories and to give an adequate account of the behaviour of some aspects of the world or universe. Once proposed, speculative theories are to be rigorously and ruthlessly tested by observation and experiment. Theories that fail to stand up to observational and experimental tests must be eliminated and replaced by further speculative conjectures. (1982, p. 38).

Popper's perspective is itself a step away from logical positivism: it does not assert that scientific theories are true, simply that the best available theories are those that (a) explain observations better than competing theories and (b) have yet to be falsified.

Under this view, the criterion for a statement or hypothesis being scientific, rather than some other kind of statement, is that it is falsifiable: that is, that some form of empirical test is capable of being performed which could prove the hypothesis wrong.

What kind of evidence would be considered sufficiently strong to falsify hypotheses within the human sciences? The problems of the theory-dependence of observation and experiment (Chalmers, 1982) have made pure falsificationist perspectives difficult to sustain even in the physical sciences, let alone in the almost infinitely more complex and context dependent human world. Popper's approach appeals to experiment and observation to test and falsify theories, yet 'theory of some kind precedes all observation statements' (Chalmers, 1982, p. 32). That is to say, falsificationism—at least of a naive kind—is inherently circular: it appeals to observation to test theory, yet theory exists prior to and implicit in all observations.

Is it possible to make generalisations within the human sciences that are just as falsifiable as those in the natural sciences (especially the physical sciences), yet have not already been falsified? I have come to really doubt that this is possible: the plethora of standards for knowledge claims in our discipline means that a final and consensual 'falsification' of a view is almost impossible. (Or does the fact that behaviourism has fallen so far out of favour constitute a falsification? Probably not.)

One significant challenge to falsificationist accounts of the nature of science is that of Thomas Kuhn (1970). Kuhn explained the historical accounts of scientific revolutions using the idea of a 'paradigm'. Kuhn uses the term somewhat confusingly, sometimes considering a paradigm to be a particular exemplary scientific achievement that sets standards for practice and canons for evidence within a particular field. This is the kind of paradigm characterised by David Stenhouse (1986) as a 'Public Demonstration Paradigm' (PDP). The more powerful and pervasive image of a paradigm, however, is that of a complex, inter-related structure of theories and ideas which both explains current observations and suggests interesting questions and directions for further research. Stenhouse (1986) describes this sense of the term as a 'Common Assumptions Paradigm' (CAP).

An individual scientific 'fact' therefore, is not an entity unto itself, but is given meaning and reality through its place within the complex web of meanings which forms the paradigm. A statement such as 'hydrogen is an odourless flammable gas' presupposes a class of things which are described as gases, conventions of odour and a definition of what 'flammable' means—that is, 'combines with available oxygen from Earth's atmosphere, releasing energy, when ignited by a source of heat'. Of course, this definition of inflammability itself requires definitions of atmosphere, heat, and ignition: and so on, almost *ad infinitum*.

Kuhn described scientific revolutions as 'paradigm shifts'—the defeat of existing weaker paradigms by more powerful, useful ones. He saw this as a dramatic, revolutionary process, and drew attention to such examples from the history of science as the Copernican revolution. Before such a revolution can occur, however, a dominant paradigm must exist. Kuhn describes the time during which this is the case as 'normal science'. He describes fields of endeavour where there exist no single dominant paradigm, but a variety of competing paradigms, as 'prescientific', and notes that in such a situation scientific writing becomes much more cumbersome, since there exists no common vocabulary of key concepts which can be 'taken as read'—each new scientist must derive every concept required in the argument from first principles, and must even postulate such principles.

While Imre Lakatos' (1970) perspective differs in a number of important ways from that of Kuhn, Lakatos' 'research programs' are similar enough to Kuhn's paradigms that to some extent they can be treated together for the purposes of the current discussion. Both are complex structures of internally consistent theories that may be superseded (in different ways) by better such structures. The key difference is that Lakatos saw the history of science as more evolutionary than revolutionary: rather than the complete overthrow of the older paradigm in a brief and violent revolution, he described research programs as growing together in similar soil, but compet-

ing with one another for adherents and resources. Research programs that cannot compete strongly begin to whither away, as scientists and research funding desert them: these are described as 'degenerating programs'. At the same time other research programs seem to be becoming more useful and explaining the world better. Resources flow toward these, and they become 'progressive' research programs. It is possible, through a change in the 'climate' within which the research is conducted, for a degenerating program to become progressive again, and vice versa.

Each of these perspectives has value for thinking about the practices of research in education at a number of levels. In terms of the 'paradigm wars' (Gage, 1989, Paulston, 1990), I believe Lakatos' scheme of degenerating and progressive research programs is more powerful than Kuhn's more revolutionary approach for describing theory change. Clearly both the qualitative and quantitative research programs (broadly defined) in education are growing and thriving, and it seems unlikely that there will be a complete 'scientific revolution' in which allegiance switches completely to one paradigm or the other—and, in my opinion, neither should there be. Instead methodologies are chosen for particular purposes, based in particular sets of values and epistemological commitments, and used in particular contexts.

Perhaps the most powerful description from these perspectives in the philosophy of science is Kuhn's notion of a 'prescientific' community—one in which there exists no single over-arching paradigm (of Stenhouse's [1986] CAP type) but a variety of competing perspectives and approaches. I would argue that this describes very well the field of educational research as it currently exists, and that Kuhn's description of how science is conducted in such an environment is a powerful referent for the conduct of research in education. In representing educational research in written reports to our colleagues and constituencies, there is no Common Assumptions Paradigm to which educational researchers can appeal, and which would simplify the task of writing. It is necessary to state explicitly within the writing both the assumptions under which the work is conducted and justified, and the appropriate standards under which its quality should be judged.

But perhaps the search for a single paradigm in educational research is fundamentally flawed? Or even the search for a blend of incommensurable paradigms that will serve educational research? I believe this is the case: that theory generated by research in education is essentially a byproduct, rather than the main game. The model of creating theories, inductively and deductively, and using these to deliver prescriptions for practitioners, then (generally) lamenting their 'failure' to implement these alien prescriptions, is fundamentally mistaken as a mode for serving teachers and students.

Models from Philosophy of Technology

Edward Constant (1973) applied Thomas Kuhn's (1970) model of paradigms and revolutions to technology, however he used only the Common Assumptions Paradigm notion outlined by Stenhouse (1986), and did not address the need for Public Demonstration Paradigms (PDPs) or 'exemplary cases'. Gary Gutting (1980) remedied this lack by considering the role of PDPs in technological change. Both of these perspectives, however, are finally unsatisfying, in that they attempt to adapt a perspective that was explicitly intended to describe the development of new knowledge (scientia) to the development of new 'made things' (techné) and new ways of working and doing (praxis). (Kuhn's scheme has been appropriated in a large number of contexts where it is perhaps metaphorically or analogically useful, but probably shouldn't be directly applied, including learning theories (Geelan, 2000) and educational research (Geelan, 2001b).)

Blacker (1996) distinguishes two poles of philosophy of technology, each complemented by broadly pro- and anti-technology perspectives. 'Substantivist' perspectives claim that technologies shape societies, and determine the relations and activities of individuals. The perspectives of Heidegger, Habermas and particularly Jacques Ellul fit generally within the anti-technology, or at least critical, end of the substantivist view. 'Instrumentalist' perspectives treat technologies as simple tools that can be picked up or laid down for accomplishing human purposes, and to some extent consider technologies to be neutral: it is humans who define these purposes. As Blacker points out, this perspective has some intuitive force, but applies more simply to 'individual' tools like a hammer, pen, or computer, and much less well to larger scale technological systems like electric power grids or the Internet, where the nature of the technology itself tends to determine our interactions with it.

Paul Durbin (1998) suggests that perhaps philosophy of technology has wandered down the wrong paths in seeking academic legitimacy and reward:

> At Bad Homburg, I quoted our German colleagues, Hans Lenk and Günter Ropohl:
>
> > The multidisciplinary and systems-like interlocking of techn(ologi)cal problems requires … the interdisciplinary cooperation of social science experts and generalists, … systems analysts and systems planners. Philosophy has to accept the challenge of interdisciplinary effort. … It has to step out of the ivory tower of restricted and strictly academic philosophy (Durbin, 1983, p. 2).
>
> But we must take this plea quite literally, and cooperate not merely with other experts; we must also cooperate with all sorts of citizens of good will

> who are seeking progressive solutions for serious contemporary social problems. (Durbin, 1998)

This call ties in with the plea of Paul Feyerabend from within the philosophy of science:

> ... my concern is neither rationality, nor science, nor freedom—abstractions such as these have done more harm than good—but the quality of the lives of individuals. This quality must be known by personal experience before any suggestions for change can be made. In other words: suggestions for change should come from friends, not from distant 'thinkers'. It is time to stop ratiocinating about the lives of people one has never seen, it is time to give up the belief that humanity ... can be saved by groups of people shooting the breeze in well-heated offices, it is time to become modest and to approach those who are supposed to profit from one's ideas as an ignoramus in need of instruction.... (Feyerabend, 1987, p. 17)

This commitment is similar to the 'immersed' action research approaches of Paulo Friere (1970, 1982) and Orlando Fals Borda (1979) in South America, and resonates with Dick Corbett and Bruce Wilson's (1995) plea that researchers 'make a difference with, not for, students'.

The following sections constitute an exploration of some issues and characteristics that arise from the notion of applying this kind of local, situated, humble, participant approach to research in education.

Technological Problem-Solving and the Local Character of Problem Solutions

One of the characteristics of models from the physical sciences is the quest for generalization: the more general a theory's application, the better the theory is judged to be. I believe this has been perhaps the single most malignant effect of these models in research in education: the search for a theory that fits everyone, everywhere, coupled with the Procrustean practice of simply ignoring those inconvenient parts of people's lifeworlds that don't fit the prescriptions of the theory: or, worse, of casting such issues as 'deficits' in the teachers or students. If 'context' is understood richly as including all of the internal and external dimensions of the classroom discussed above, then it intuitively seems unlikely that a solution developed in one context will be able to be applied unadapted in a different context. From a technological problem-solving perspective, having solved a particular problem in one context yields, not a prescription for direct application to a new context, but a constantly increasing set of skills and possible solutions that must be creatively, reflectively tested and tried in the new context in order to make (the root word of 'technology' is the Greek verb 'techné': 'to make') a new solution that is optimal.

The 'educational connoisseur and critic' role described below is essentially the role of sharing 'war stories' of solutions made in one place with educators in another place. This allows experience to be built up within the community of practitioners, rather than having to be built up through each educator 're-inventing the wheel' in her own context. The 're-inventing the wheel' metaphor is an apposite one. Knowing that the wheel has been invented elsewhere is not sufficient to allow a wheel to be successfully used in a new context. It will be necessary to decide, for example:

- whether a simple roller is sufficient for the problem at hand, or whether a wheel would work better;
- whether the wheel should be a solid disc or have spokes
- whether a tire is needed;
- what materials are available, and provide the optimal balance of cost and reliability;
- whether strength or low friction is the higher priority in this application .

This is only a far-from-exhaustive list of example issues, of course, and each of these issues will effect the others: whether the wheel needs to be solid, with the attending weight disadvantages, or whether it can be spoked will depend on the kinds of materials and technologies available, and for almost all of these issues the goal is to find a solution that is *optimal given a particular context and for a particular purpose*, rather than generalizable to a wide range of contexts.

The New Nature of Educational Research

The perspective outlined by Jack Whitehead in his 1989 paper has been very influential on my own thinking about research in education, but I now think that perhaps he doesn't go far enough. Jack has been pursuing an approach to inquiry in education that he describes as the development of 'living educational theory' (Laidlaw & Whitehead, 1995; Whitehead, 1989). He suggests that through asking questions of the kind 'How do I improve my practice?' practicing educators work to develop theoretical understandings that, rather than being derived from bodies of formal research and theory in the disciplines of psychology, sociology, anthropology, philosophy and even institutionalized educational research, are derived directly from educators' attempts to embody their educational and personal values in their practice. Like my own perspective, Whitehead's is explicitly value-laden: teachers value certain things, and the process of attempting to improve teaching is necessarily the process of attempting to embody more fully in our practices the things we value.

Whitehead notes that, due to a variety of constraints—both external/institutional and internal/biographical—none of us is able to fully embody in practice the values and beliefs we espouse. He writes:

> My insights about the nature of educational theory have been influenced by viewing video-tapes of my classroom practice. I could see that the 'I' in the question 'How do I improve this process of education here?', existed as a living contradiction. By this I mean that 'I' contained two mutually exclusive opposites, the experience of holding educational values and the experience of their negation... Is it not [the] tension, caused by this contradiction, which moves us to imagine alternative ways of improving our situation? By integrating such contradictions in the presentations of our claims to know our educational practice we can construct descriptions and explanations for the educational development of individuals. (Whitehead, 1989)

Certainly this has been my experience and, I suspect, that of many of my teaching colleagues. The Apostle Paul says:

> I do not understand my own actions. For I do not do what I want, but I do the very thing I hate ... I can will what is right, but I cannot do it. For I do not do the good I want, but the evil I do not want is what I do. (Romans 7:15,19. RSV)

On the basis of our personal and educational values, we have certain aspirations for the ways we will teach and interact with young people, yet in our practice we find ourselves negating these values and aspirations. Whitehead (1989) suggests that, rather than hiding these contradictions in a linear, propositional-logical representation of our inquiry, we should strive to represent them in a dialectical mode. The tension between our values and aspirations, on the one hand, and perceived shortcomings of our practice, on the other, is the dynamo that drives our attempts to improve our practice through thoughtful inquiry.

Jack Whitehead's approach, though, is still about creating knowledge claims for external (to the classroom) judgment and validation. While he advocates including more of the uncertainty and complexity of classroom life, and the tentative nature of our understandings in written research reports, as a counterpoint to the certain-seeming, prepositional-logical language of theory, he does not go so far as to suggest that the creation of texts is a mere byproduct of the educational research activity. At least, texts that are intended for audiences other than students and teachers seem in some ways irrelevant to the goals of improving—or even understanding in any useful way—education. Whitehead (Laidlaw & Whitehead, 1995) has in some ways gotten 'stuck' in fighting with universities and other external 'gatekeepers' over the legitimacy within the academy of the knowledge claims made by himself and his students. While this fight may have some value in valorizing the kinds of research roles for academics that are outlined below, at the same time it seems like a use of energy that is not optimally directed for serving the interests of learners.

Role of Practitioners

If we are to eschew the quest for broadly generalizable theory, and for new knowledge claims as the goal of research in education, and to instead pursue a technological problem-solving approach to answering questions of the kind 'How can I improve what happens in my classroom?', the role of practitioners in educational research will become far more central than it is now. The model of science and technology that is a common misconception—scientists do basic research, technologists implement it—is very much the model that has been applied in education: academics do basic research, teachers implement it (or rather, 'fail' to implement it, and are complained about by academics!) If the goal is serving students in better ways, however, different modes of research are of more value.

Donald Polkinghorne (1992) discusses the split between academic research in psychology and what he describes as the 'postmodern epistemology of practice':

> The psychology of practice is an example of the new pragmatism in action. It has come to understand that the human realm is fragmented and disparate and that knowledge of this realm is a human construction without a sure foundation. Yet this knowledge has not led to a retreat into a disparaging skepticism; rather, it has led to an openness to diverse approaches for serving people in distress. The psychology of practices body of knowledge consists of the aggregate of the professional community's experience of what has been beneficial to clients. The criterion for the acceptability of a knowledge claim is the fruitfulness of its implementation. The critical terminology of the epistemology of practice has shifted from metaphors of correctness to those of utility. (Polkinghorne, 1992, p. 162)

This shift of perspective is at the heart of the change I am advocating in this paper. When serving students very directly through improving what happens in classrooms is the goal, rather than metaphors of knowledge production and legitimation, then the 'aggregate of the professional community's experience of what has been beneficial to [students]' becomes the body of knowledge of educational research, and the standards for judging that knowledge becomes, not 'is it true or correct (or valid or reliable)?' but 'does it work?'

Of course, this is not a simple question! It immediately begs the question 'work for whom?', 'work for what purposes?' The emancipatory interest (Habermas, 1971) that keeps questioning the educational means and ends chosen remains a crucial part of the conversation that occurs within the professional community.

I would like to argue that this 'aggregate of experience' view of research, with the related criterion of utility, is much more closely analogous to the approach used in development of new technologies than it is to science.

Indeed, the 'works for whom?' question, in terms of new technologies, is answered in the marketplace: who will buy this artefact? My left-wing soul cringes from the idea of 'marketizing' education in this way: making the criterion of 'what works' in education the marketing of the school and the choices of parents. (This is the ideological foundation of voucher programs and a variety of other neoconservative 'reforms' in education.) The successful marketing of technological products that have doubtful real utility, but are well marketed, might sound a cautionary note in this direction, and I believe it is essential that the professional community retains some—publicly defensible—notion of 'the good' in education, rather than merely marketing schools on the grounds of what is 'popular or fashionable'. Educators would need to do a much better job of marketing their view of what is of value in education to the general public than they are currently doing, if public funding of education is to continue. What works, and for whom, are questions that need to be addressed within a broad consensus on the kind of society we want.

In an educational research environment modeled on technological problem-solving, it is the practitioners day-by-day, moment-by-moment experiments that constitute the research, and it is the sharing of that experience in 'war stories', and the development of that experience through apprenticeship as a new teacher, that constitutes the knowledge growth and the testing of knowledge claims. This has implications for how teachers are initially educated and for their on-going professional development: time to observe other teachers' work, and space to discuss teaching and share 'war stories' and experience, are critical. Teacher education would be a more apprenticeship-like model, offering extended opportunities for involvement with other professionals in classrooms.

Role of Academics

Does there remain a role for the kind of people who will (largely) be attending this conference—academics in education? If practitioners are at the centre of the research activity in classrooms and, similarly, administrators in schools and districts are conducting research into policy, and if the production of research texts is seen as largely peripheral to the real business of educational research, what remains for us to do?

Elliott Eisner's (1998) image of researchers as connoisseurs and critics of educational practice resonates with me as a possible way forward. Eisner compares connoisseurship of education with connoisseurship of wine, and notes the importance of the ability both to appreciate the qualities of experience 'in themselves', and also to locate them within a well-elaborated larger scheme. That is to say, an educational connoisseur will experience a particu-

lar classroom incident or emphasis both as itself and as an example of a larger class of incidents, and through a number of the dimensions described above.

Connoisseurship alone is sufficient for the satisfaction of the connoisseur, but it does nothing to share the experience or to educate others toward experiencing qualities in similar ways. Eisner describes the process of representing the experience of the connoisseur for others, by analogy with criticism of books, films and art, as 'educational criticism'. The critic, he argues, is one who can draw the attention of the reader to the qualities of experience, so that the reader will to some extent partake of the experience itself, and will also be educated to further possibilities for understanding and engaging with his/her own experience.

The role of the academic, therefore, becomes like that of the movie or music critic: creating an 'appreciation' of the work of practitioners that sets it within a broader context, and that makes it accessible for readers. The role itself is explicitly educational in that, if done well, it can lead to development of readers' own critical faculties and knowledge of the world.

A related issue is the role of media. It has been said that 'writing about music is like dancing about architecture', and perhaps something similar could be said about writing about teaching. Perhaps text is simply not the best or most appropriate tool for portraying and discussing what is good about teaching—or if it is one good tool (and novels like Evan Hunter's 'The Blackboard Jungle' suggest that it can be a very good one indeed), perhaps it doesn't deserve its preeminence, and should instead become simply part of a representational toolkit that includes audio, video and new media. Annotated video vignettes of teaching are already being used to provide criticism and discussion of educational 'performances', and the possibilities of using other media in research will expand dramatically over the next few years. Their use for the purposes of the 'inside' practitioner research discussed above will be both similar and different to the use of media for the connoisseurship and criticism functions of educational academics.

Conclusion

I've advocated the idea here that we should eschew the creation of theory as a goal in educational research. Research in education, to the extent that it's intended to serve practice in education (rather than the interests of researchers and academics), is more powerful when it avoids the quest for generalization in all its forms, and seeks practical, concrete, rich, complex, and above-all context-sensitive understandings of what will serve the needs of teachers and students in classrooms.

This perspective should not be seen as a frustrated 'giving up' on the ideal of scientific/theoretical research in education, but as a long-overdue

recognition that it was a match made in hell all along. Attempts to apply scientific methods to classrooms were driven by a quest for the reflected legitimacy of 'scientific' research, rather than by the needs of the participants. To take research in education back in the direction of addressing questions such as 'how can I improve education, right here, right now where I'm involved in it?', and addressing them in rich ways through the dialectic of aspiration and practice, is to take it in the direction best adapted to improve learning.

There remain, of course, questions about both the advisability of such a course, and the practical details of its implementation. I will leave these as a starting place for an on-going conversation.

Note

Parts of this paper have been adapted from the forthcoming book *Weaving Narrative Nets to Capture Classrooms,* which will be published by Kluwer in the next few months, and other parts from my paper in the *Australian Educational Researcher* (Geelan, 2001b).

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