

Praxis and Practice Architectures in Mathematics Education

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This paper discusses the way “right conduct” in education – *praxis* – is embedded in social practices – *practice architectures* – which enable and constrain conduct in three dimensions: cultural-discursive, material-economic, and social-political, or “sayings”, “doings”, and “relatings”. It is argued that changing professional practices like mathematics education is not just a matter of changing the understandings (cf. sayings), skills, and capabilities (cf. doings) or values and norms (cf. relatings) of practitioners, but also changing the practice architectures that enable and constrain practitioners’ actions and interactions. The practice architectures of mathematics education are constructed not only by the knowledge, capabilities, and values internal to traditions in mathematics education but also by meta-practices external to those traditions – particularly the meta-practices of educational administration and policy making, initial and continuing teacher education, and educational research and evaluation. Today, the elaborateness, the rigidity and the compulsions associated with these meta-practices threaten the vitality of education in general, including mathematics education. Educators are thus confronted by an invidious choice. Should they conduct their practice as *praxis*, oriented by tradition and by considerations of the good for each person and the good for humankind as these are expressed in the conduct of education as a practice, as *agents* of education? Or should they conduct themselves as the *operatives* of the education systems in which they find themselves, following the rules and procedures that constitute the functional rationality of those systems?

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In this first section of the paper, I will briefly outline the working theory of practice that is guiding some of the research of our “Pedagogy, Education and Praxis” project at Charles Sturt University and in collaboration with fellow-researchers from the Netherlands, the Nordic countries, and the United Kingdom. Before outlining our view of how the special form of action called “praxis” constructs and is constructed in “practice architectures”, however, I would like to make some remarks about “education”. This is “the big picture” for those of us concerned with praxis and practice in education as a discipline and as a profession. Although saying so is by no means original, I want to recall explicitly that education is always and necessarily a moral and political endeavour.

Education

In an unpublished monograph prepared for students in the Bachelor of Education (Primary) course at Charles Sturt University, Wagga Wagga (Kemmis, 2006), I asserted that

Education has a double purpose. On the one hand, it aims to form and develop individuals with the knowledge, capabilities and character to live good lives – that is, lives committed to the good for humankind. On the other hand, education aims to form and develop good societies, in which the good for humankind is the principal value. (p. 5)

This view of the double purpose of education follows a long tradition in the discipline of Education, echoed by the centuries-long European tradition of Pedagogy (in Dutch, *Pedagogiek*; in Swedish, *Pedagogik*; in German, *Pädagogik*; see Ponte, 2007; Ponte & Ax, forthcoming 2008). Yet today there are many (even graduates of teacher education courses) who appear unable to make a distinction between “education” and “schooling” – between “education” with this double, individual and social, purpose and “schooling” which is the institutional formation of learners to attain (usually state-) approved learning outcomes which might or might not be in the interests of the students themselves or the good for humankind (though of course it is usually intended to be). People unable to make this distinction are thus unable to conceive of schooling which is non-educational or even anti-educational, as might occur in a totalitarian regime. People unable to make this distinction might thus be prevented from forming a critical view about whether schooling, as we have it here and now, in our schools and our states, is “educational”, properly speaking. And people who are educators might also be expected to know other, related distinctions like those between teaching and education, between

learning and education, between training and education, between socialisation and education, and between indoctrination and education.

It might reasonably be expected that teachers should be educators, and that their practices as teachers might be not only “teaching practices”² but “educational practices”. That is, on the one side, it might reasonably be expected that when a teacher acts as an educator, it is in the interests of the particular learners present: in the interests of their self-development, their self-expression and their self-determination (Young, 1990) as persons. On the other side, the teacher acting as an educator acts in the interests of the good for humankind: in the interests of the “self”-development, “self”-expression and “self”-determination of the various social and political collectivities in which we live our lives. On this view, education has the moral, social, and political purpose that aims to develop not only good people but good societies.

To have a good society – a democratic society, for example – we must have not just individuals each of whom is personally committed to the good for humankind; we must also have *the kinds of structures, practices and relationships which foster, express and, in the end, constitute the collective good for humankind*. These structures, practices, and relationships will value truth in some sense above falsehood, self-deception, and fraud in the cultural-discursive dimension. They will be the kinds of structures, practices, and relationships which value human and global well-being in some sense above harm, suffering, and waste in the material-economic dimension. And they will be structures, practices, and relationships which value goodness, care, equity, legal and political equality, recognition and respect for persons, and justice for all in some sense above evil, exclusion, tyranny, and injustice in the social-political dimension. These are the kinds of social structures, practices, and relationships we most hope for in societies that claim to be democratic.

In democratic societies, teachers who are educators are necessarily concerned with education for democracy. A democratic society aims to constitute, through its formal and informal structures, practices and relationships, the conditions in which each can thrive and all can thrive, and in which each and all are protected from the worst – including the harm we can do to each other. A teacher who is also an educator is thus concerned as much with the well-being of the social whole, the collectives of the classroom, the school, the community, the state, and the world, as with the well-being of each learner. An educator thus stands for something more than the interests of individuals and sees societies as something more than undifferentiated aggregates of individuals, each of whom must make their own way in our flawed, frail, and fragile world.

Such a teacher sees a society as a social space constructed in an organic tissue of structures, practices, and relationships that enable and constrain people so each and all have equal and achievable opportunities to self-development, self-expression, and self-determination. Such a teacher, through her or his educational practice, conscientiously and resiliently assists in creating this organic tissue of connections in her or his classroom, school, and community. Such an educator aims, necessarily, to be wise and prudent – to envisage the possible long-term consequences of action in the here and now, and to envisage possible harm and suffering that could be avoided. Such an educator is also necessarily critical – able to be critical about present and existing structures, practices, and relationships that, by their immediate effects or their long-term consequences, cause or permit harm and suffering.

The kind of educator I am describing necessarily aims to act in ways that are morally and ethically appropriate, and in ways that are politically appropriate – that is, to act in ways that avoid harm and thus make a positive contribution to our shared fates as co-habitants of the planet and our solidarity with one another as persons and citizens.

Two Views of Praxis

In the *Ethics* (2003), Aristotle (384 BCE – 322 BCE) drew distinctions between different kinds of actions, guided by different kinds of dispositions. These are presented in Table 1 below (excerpted from Kemmis & Smith, 2008), supplemented by another kind of action and disposition which I have adapted from Habermas’s (1972) *Knowledge and Human Interests* (in which Habermas suggests replacing the ancient idealist notion of *epistēmē* with a critical-emancipatory disposition):

2 In a special issue of the *Journal of Philosophy of Education* concerned with whether teaching is a practice, Nel Noddings (2003) concludes that it is, describing teaching as a caring practice.

Table 1*Four Perspectives on Dispositions and Action*

	Theoretical perspective	Technical perspective	Practical perspective	Critical-emancipatory perspective
Telos (Aim)	The attainment of knowledge or truth	The production of something	Wise and prudent judgment; acting rightly in the world	Overcoming irrationality, injustice, suffering, felt dissatisfactions
Disposition	<i>Epistēmē</i> : The disposition to seek the truth for its own sake	<i>Technē</i> : The disposition to act in a true and reasoned way according to the rules of a craft	<i>Phronēsis</i> : The moral disposition to act wisely, truly and justly; with goals and means both always open to review	<i>Critical</i> : The disposition towards emancipation from irrationality, injustice, suffering, felt dissatisfactions
Action	<i>Theoria</i> : Contemplation, involving theoretical reasoning about the nature of things)	<i>Poiēsis</i> : “Making” action, involving means-ends or instrumental reasoning to achieve a known objective or outcome	<i>Praxis</i> : “Doing” action, involving practical reasoning about what it is wise, right and proper to do in a given situation	<i>Emancipatory</i> : Collective critical reflection and action to overcome irrationality, injustice, suffering, harm, unproductiveness or unsustainability

Here, I want to highlight the concept of “praxis”. In Table 1, “praxis” is used in an Aristotelian sense, to be understood in terms of “right conduct” or, as Kemmis and Smith (2008) put it,

Praxis is a particular kind of action. It is action that is *morally-committed, and oriented and informed by traditions in a field*. It is the kind of action people are engaged in when they think about what their action will mean *in the world*. *Praxis* is what people do when they take into account all the circumstances and exigencies that confront them at a particular moment and then, taking the broadest view they can of what it is *best* to do, they *act*. (p. 4; emphases in original)

It is important to note that “praxis” is *the action*. Of course, one’s thinking may be part of one’s doing, but praxis is not the thinking that may precede action (cf. Aristotle’s notion of the guiding disposition of *phronēsis*, and the practical deliberation which may also come before the action; Schwab, 1969; Reid, 1978). Praxis is the action itself, in all its materiality and with all its effects on and consequences for the cultural-discursive, material-economic, and social-political dimensions of our world in its being and becoming. Praxis emerges in “sayings”, “doings”, and “relatings” that are usually more or less coherently “bundled together” (Schatzki, 2002). As praxis “enters” the world, guided by good intentions for individuals and humankind, and shaped by traditions of thought about a particular field of practice, it begins to change the world around it (as do all actions, whether praxis or not). It aims to be wise and prudent, but as it happens, it immediately begins to affect the uncertain world in uncertain and indeterminate ways. Consequences begin to flow, whether for good or for ill. Now the ones who act begin to learn the measure of their wisdom and prudence: do things turn out as they had hoped, anticipated, and intended? So: praxis changes the world, with consequences that ripple “out” from the location in which the action took place, and cascade “down” through time.

Of course, the action that is praxis does not have its origins solely in the actor, either. She is always already pre-formed by the “sayings”, “doings”, and “relatings” that have made her who she is today. In the past and present, she has been changed by “sayings”, “doing”, and “relatings” – her own or others’ – and she has inherited a world partly made by her history of action in the world. She is a “subject” who has been formed as well as a person who forms herself and others.

And the action that is praxis comes into a world always already pre-formed for this particular possibility of action, for this praxis. At the moment of action, it is a world ready for this. It is a world in which such an action as this is possible, and usually relevant and appropriate. It may be a moment in which it is time to speak out. It may be a moment when the most important thing is to show care. It may be a moment when one must listen. It may be a moment in which it is necessary to tell the patient his illness is terminal, or the student that he must leave the room.

I want to emphasise that praxis is action in which the practitioner is aware of acting in history, that it is history-making action, that it has, for the one acting, some world-historical significance (even if a small thing in itself). And this is a second sense of the term “praxis” that was taken up and developed by Marx from Hegel. If the Aristotelian sense of praxis finds its locus in the one who acts – the actor – the post-Hegelian, post-Marxian sense of praxis finds its locus in the world acted within and upon, and in the unceasing flow of history made by human, social action. This is the sense of “praxis” discussed by Bernstein in his (1971) book *Praxis and Action*.

So: praxis comes into the world through the actions (sayings, doings, and relatings) of people, individually and collectively, changing the world through the immediate effects and long-term consequences of their actions, and these effects and consequences become conditions that in turn shape actors and the media in which they can act in the world – the medium of language in the cultural-discursive dimension of human sociality, the medium of work in the material-economic dimension, and the medium of power in the social-political dimension.

Educational praxis is action that is consciously directed not only by the intention or purpose (*telos*) of aiming towards the good for students and the good for humankind; educational praxis is action consciously directed towards *forming* good individuals and good societies. Education consists in this process of formation – educational praxis is *doing* this forming. Praxis is the action, not the intention.

Practice Architectures

Under some circumstances, cultural-discursive, material-economic, and social-political conditions produced by human beings acting in the world become sedimented rather than ephemeral, institutionalised rather than fluid or contested. They thus come to be among the conditions that frame, and enable and constrain, subsequent action-possibilities. They may be institutionalised (and become contested):

- in the cultural-discursive structures of language; in discursive practices; and in the form of relationships between speakers and hearers, authors and readers;
- in the material-economic structures of work and life in the natural world; in work practices; and in the form of material and economic relationships between producers and consumers, or owners and workers; and
- in the social-political structures that give form to power; in administrative and regulatory practices; and in the form of social and political relationships between people and groups like the hierarchical relationship between managers and the people they manage, the complementary relationship between professional practitioners and their clients, or the reciprocal relationships of solidarity and legitimacy that form among people in interest groups or public spheres.

When these structures, practices, and relationships become sedimented and institutionalised, they then function as *mediating preconditions* for subsequent practice and praxis: preconditions that pre-form what kinds of practice or praxis will be possible in particular kinds of circumstances – like the circumstances of a professional practice, for example, like the practice of mathematics education.

Table 2 shows these dialectical relationships of mutual formation and transformation between actors and action possibilities – action possibilities that can become sedimented into “practice architectures” that enable and constrain future action.

Table 2*The Dialectic (Mutual Constitution) of Action/Praxis and Practice Architectures*

Action and praxis	Dimension/medium	Practice architectures (mediating preconditions)
“Sayings” (and thinking)	The cultural-discursive dimension (in the medium of language)	Cultural-discursive structures, practices and relationships
“Doings” (and ‘set-ups’)	The material-economic dimension (in the medium of work)	Material-economic structures, practices and relationships
“Relatings”	The social-political dimension (in the medium of power)	Social-political structures, practices and relationships

At the beginning of this paper, I argued that education has a double purpose: the formation of individuals and the formation of societies. I then argued that praxis has two meanings, one referring to the “right conduct” of individuals and another referring to the “history-making action” of individuals and people collectively. “Educational praxis”, then, is that particular kind of human and collective action – educational action – by which good individuals and good societies are formed and transformed. Finally, I argued that the consequences of our actions construct and frame future possibilities for action, in the form of “practice architectures” that enable and constrain action, including not only the actions of educators, but also those they educate, as well as all those others whose work and practices function as “meta-practices” that shape the practices of others – including, in education, teacher educators, educational policy-makers and administrators, and educational researchers and evaluators. To express it as Karl Marx did (1852/1999),

[People] make their own history, but they do not make it as they please; they do not make it under self-selected circumstances, but under circumstances existing already, given and transmitted from the past. The tradition of all dead generations weighs like a nightmare on the brains of the living. (p. 1)

Changing Practices

We should note that not only action possibilities, but also actors and their self-understandings – their identities and their subjectivities – are also framed and constructed by these practice architectures. By their engagement with, in, and through these practice architectures, people construct their self-understandings and their understandings of the world, their modes of activity and their skills and capabilities, and their roles and patterns of relating to others. They construct themselves in the terms made available to them by the practice architectures they inhabit. Educators and teachers are made the educators and teachers they come to be by complying with and also by resisting the particular practice architectures in which they live and work.

Some practice architectures favour the development of educators; some permit only the development of teachers. Particular forms of initial teacher education and continuing professional development, particular kinds of educational policies and educational administration, particular forms of educational research and evaluation, favour the development of educators; others permit only the development of teachers.

If we want schools and kinds of education different from the schools and schooling we have today, then we must change not only the educators and the teachers; we must change the practice architectures that construct their action possibilities, their self-understandings and their understandings of the world, who they are and who they can become.

It follows, then, that changing professional practices like mathematics education is not just a matter of changing practitioners’ own particular understandings and self-understandings (cf. sayings), skills and capabilities (cf. doings) or values and norms (cf. relatings), but also changing the practice architectures that enable and constrain what practitioners can do.

How System Meta-Practices Endanger Traditions: A Crisis for Education?

The practice architectures of education and mathematics education are constructed not only by the knowledge, capabilities, and values internal to traditions in mathematics education but also by meta-practices external to those traditions – particularly the meta-practices of educational administration and policy making, initial and continuing teacher education, and educational research and evaluation. These meta-practices function as practice architectures that enable and constrain possibilities for action in education and mathematics education. They may enable and constrain action to such an extent that they may even make *education* – or mathematics education – almost impossible to enact.

When the Board of Studies school mathematics syllabus imposes too many demands on what teachers should cover, when the National Assessment Program – Literacy and Numeracy (NAPLAN) or the Organization for Economic Cooperation and Development (OECD) Program for International Student Achievement (PISA) testing programs place too great an emphasis on what will count as “numeracy”, when a teacher education program places too great an emphasis on a particular approach to teaching and learning in mathematics, or when the research program of the International Council for Mathematics Education is dominated by particular approaches to research on mathematics education, dangers emerge. Some of the advice mathematics teachers receive from those bodies will assist them, help them to see the difficulties of students more clearly, help them to make school mathematics more engaging and success in school mathematics more attainable. But attending to these multiple sources of advice may not come without costs – they contain contested and contradictory messages about what good mathematics education – and good education – consists in. If teachers are obliged to follow all the available advice too slavishly, if they take their eyes off the students in front of them because they are obliged to listen too closely to the voices of the advisors and administrators behind them, they may find themselves working on what the state intends – schooling – rather than for the good of their students and the society. The syllabus, instead of being a source of guidance and inspiration for teachers and students, may become a litany of imposed tasks to which teachers and students cannot do justice. It is possible for a state or an education system to ask too much. In the ever-more-prescribed, ever-more-regulated circumstances of education and mathematics education in Australia, the mania for extending such advice threatens to overwhelm even the most capable and committed teacher. For many teachers, there is just too much to do to follow all the guidelines, meet all the objectives, deploy all the suggested teaching strategies and curriculum resources, and attain all the targets. Thus, they choose. They interpret. They do their best to meet the needs and interests of their students and communities. But they may have to do so by teaching against the grain of the advice they receive. And that can be risky.

As Australian Ministers of Education once again consider a national curriculum, and national testing, the spectre emerges of a curriculum for all that will be a curriculum for none. Will a national curriculum better serve the needs and interests of students in remote Indigenous communities in central Australia? Will it better serve the interests of students in those communities with exceptional needs on the margins of our major cities? How will objectives and strategies be specified so that teachers have the capacity and the opportunity to respond to differences in the needs and circumstances of students and communities? How will the state, curriculum bodies, teacher education accreditation agencies, teacher registration bodies, and agencies conducting national testing restrain themselves from prescribing too much? Many already prescribe too much. Why, in an ever-more-diverse Australian society, should we expect greater success from ever-more-standardised solutions to the problems of teaching and learning? (The standardisation that works for DVD players, and might work better for mobile telephone chargers might not work for human beings.) In *The Farewell Party*, Milan Kundera (1993) wrote of the “longing for order”,

a desire to turn the human world into an inorganic one, where everything would function perfectly and work on schedule. The longing for order is at the same time a longing for death, because life is an incessant disruption of order. Or to put it the other way around: the desire for order is a virtuous pretext, an excuse for virulent misanthropy. (p .85)

If it is allowed to run unchecked in educational policy and administration, teacher education, and educational research and evaluation, the longing for order will endanger education and mathematics education. There is not space here to explore all of these arenas, but an example – concerning educational theory – might show the kind of way in which the practice architectures of a certain kind of educational science and educational theory might endanger education.

In his (1947) book *The Eclipse of Reason*, Max Horkheimer, one of the founders of the Frankfurt School of critical social theory, feared that science had been overcome by scientism – science’s belief in itself – and that the power of critical thought was in jeopardy. People had become so captivated by the possibility of progress through science that all realms of thought were being colonised by scientific, functional and instrumental rationality.

In the 1960s, Hans-Georg Gadamer (1975) argued that technical rationality and the idea of “scientific method” was displacing practical rationality even in the realms where the latter was the only appropriate form of rationality, and even in fields like theology, art, and the humanities.

In three powerful books, *After Virtue* (1983), *Whose Justice? Which Rationality?* (1988) and *Three Rival Versions of Moral Inquiry* (1990), Alasdair MacIntyre argued that the tradition of the virtues – what we might here roughly describe as the tradition of moral action in civil societies – has already been threatened and had already been overwhelmed in our bureaucratic, technocratic societies of modern times. In MacIntyre’s view, even the universities have been transformed into places where the tradition of the intellectual virtues is under threat – and, as inhabitants of the postmodern university, we might agree.

In the 1980s, Jürgen Habermas published his *Theory of Communicative Action* (1987, 1989). It included his theory of lifeworld and system, including the thesis that the person-to-person connections of the lifeworld, in which people meet one another as human subjects in an intersubjective space, was increasingly being colonised by the functional rationality of economic and administrative systems, debilitating lifeworld relations between people. Our capacities for self-understanding, for example, are increasingly given in terms imposed by the institutions we inhabit – the university, for example. Many Australian universities provide institutional definitions of what constitutes an “active researcher”, thus imposing particular kinds of understandings and self-understandings on their staff. The Australian Government defines what counts as “quality” in research publications, and thus imposes particular kinds of understandings and self-understandings on Australian researchers. Increasingly, we are obliged to understand ourselves – even if we resist the categorisations – in institutional or systemic terms. In the process, we may be put at risk of becoming less human than we are.

Authors like these are not alone in identifying the threats posed by “the technologisation of reason” (Kemmis, 1980).

On the view of reason as “method” (Carr, 2006b), it is thought that all problems can be solved, given sufficient time and resources: all systems can be better run; all employees can work more efficiently and effectively; all states can better manage their internal and external affairs with better policies that meet or exceed measurable targets and outcomes. On this view of reason as “method”, well-elaborated systems of schooling and training, systems of teacher education and deployment, systems of educational policy and administration, and systems of technical research and evaluation – all these functional systems can achieve all that can reasonably be achieved in terms of the development of people as citizens and clients, and as producers and consumers.

The view of reason as “method” expresses itself in technical, instrumental or functionalist rationality according to which goals must first be established and defined, and the means to reach those goals identified and implemented. Expanded economic and administrative systems must be organised and administered in the service of the defined goals and methods of attaining them. Increasingly, the setting of goals (or “targets”), the identification and organisation of means, and the evaluation of goal-achievement are conducted in a rationality that emerged from Max Weber’s (1948/1920) ideas about bureaucracy as the most rational of organisations. Powered by reflexive modernity (Giddens, 1991), public administration and modern management theory have further developed Weberian ideas of bureaucracy into ever-more flexible forms of management and control. Giddens describes reflexive modernity in this way:

Modernity’s reflexivity refers to the susceptibility of most aspects of social activity, and material relations with nature, to chronic revision in the light of new information or knowledge. ...

In respect of both social and natural scientific knowledge, the reflexivity of modernity turns out to confound the expectations of Enlightenment thought – although it is the very product of that thought. The original progenitors of modern science and philosophy believed themselves to be preparing the way for securely founded knowledge of the social and natural worlds: the claims of reason were to overcome the dogmas of tradition, offering a sense of certitude in place of the arbitrary character of habit and custom. But the reflexivity of modernity actually undermines the certainty of knowledge, even in the core domains of natural

science. ... The integral relation between modernity and radical doubt is an issue which, once exposed to view, is not only disturbing to philosophers but is *existentially troubling* for ordinary individuals. (pp. 20-21)

Instrumental, technical, functional rationality has its place – just as technique, expertise, and control have a place. But there are dangers when notions of technique, expertise and control furnish the principal models of excellence in reason (or science), or when they dominate the landscape of social life, pushing other forms of reason and rationality to the margins (or excluding them altogether). Most especially they become problematic when they are applied to the kinds of matters that are beyond their competence and control – matters concerning the moral and political actions and lives of people, and the often unexpected and unanticipated consequences that cascade from them in the course of human and natural history. Science and administration make this error when they treat people as means to ends and not, as Immanuel Kant famously put it (1998/1785), as “ends in themselves” (p. 38).

Wilfred Carr has recently written several important papers (2004, 2006a, 2006b, 2007) challenging the idea and consequences of the twentieth century view of “method”, and, following Gadamer, has called for the abandonment of the hundred-year-long intellectual project of *educational science* and theory unleashed by that idea of method. In his (2006a) “Education without Theory” paper, he concludes that

... all that now remains to be done is to accept, without regret or nostalgia, that the educational theory project has run its course and that the time has now come for us to bring it to a dignified end. (p. 150)

Instead, Carr (2006a, 2006b, 2007) calls for development of forms of educational philosophy and educational research as “a practical science” or as “practical philosophy”.

In the traditions of educational studies and educational philosophy and theory, and the tradition of *Pedagogik* in Europe, education (and *Pedagogik*) was understood to have a double purpose of the kind I described at the beginning of this paper. The questions of what it meant to be a “good person” or an “educated person”, and the question of what was in the interests of any one person or in the interests of humankind, were regarded as permanently open questions, to be re-considered and re-thought for every changing society and for different historical moments. The questions could not and cannot be closed once and for all by the answers given in any particular time or place. The task of the “Education tradition”, if I might call it that, was – and is – to continually review and revise past answers to those questions in the light of changed historical times and changed social circumstances. It was – and is – necessarily an *interpretive* task of attempting to understand the present with the resources given by the past, and in the light of changed present circumstances to rise above the tradition and to revise its resources, and, by doing so, to reinvigorate and renew the tradition by critical development of the concepts and practices internal to the tradition. The Education tradition did not and does not consist in an accumulating set of answers to an unfolding series of questions put by history, but in an enduring argument about those questions. The tradition is *the argument*. As Alasdair MacIntyre (1988) put it,

A tradition is an argument extended through time in which certain fundamental agreements are defined and redefined in terms of two kinds of conflict: those with critics and enemies external to the tradition who reject all or at least key parts of those fundamental agreements, and those internal, interpretative debates through which the meaning and rationale of the fundamental agreements come to be expressed and by whose progress a tradition is constituted. Such internal debates may on occasion destroy what had been the basis of common fundamental agreement, so that either a tradition divides into two or more warring components, whose adherents are transformed into external critics of each other’s positions, or else the tradition loses all coherence and fails to survive. It can also happen that two traditions, hitherto independent and even antagonistic, can come to recognize certain possibilities of fundamental agreement and reconstitute themselves as a single, more complex debate. (p. 12)

Moreover, the interpretive task is just the first stage of what is needed in, or asked of, the “Education tradition”; beyond the interpretive task, the Education tradition also had a *practical* task: not merely informing educators but also providing a framework for making *practical judgements* about what to do in any particular situation, whether considering the whole curriculum for a school, or what to do at this or that moment in the hurly-burly of teaching a class, or in thinking about how a school should relate to its community. What Carr calls “practical science” or “practical philosophy” is not only the work of general intellectual, moral, and social *preparation* for educational judgement and educational practice, but also the work of *deliberation* about *what*

to do in the practical circumstances in which we find ourselves, on various scales of time (whether thinking about the next minute, the next class, the next year, or the next generation), place (on various levels from local to global), and social space (whether in relation to this student, this class, this community, or this world).

Perhaps, by now, some of you will have heard the lines too often, but it seems to me that Aristotle was right, in the *Ethics*, to quote the ancient Athenian poet Agathon (448-402 BCE), friend of Plato, who wrote:

For one thing is denied even to God:

To make what has been done undone again.

This ineluctable materiality of actions and their consequences, something that always escapes our categories, our interpretations and our grasp, is what a practical science of education and practical philosophy aim to address. They aim to help us to swim in the sea of history, not just to get this or that job done, good though it may be to get those jobs done and to do them well. They acknowledge at the outset that we always see only partially, even with the aid of our most powerful theories, or the wisdom borne of long and thoughtful experience. The tide of history rolls on despite us, despite our best intentions, our expertise, and our intelligence; practical wisdom and practical reason can only help us to swim in that tide; they cannot reduce the uncertainty to certainty, they cannot make the unknowable known. The focus of practical reason is on unfolding history – on what happens in all of its “happening-ness”. Its concern with “what is to be done?” does not stop with the question or even the answer, but with what happens and what happens after that. Its concern is with what *is* done, not the contemplation about it. As Marx (2002/1845) said, “philosophers have only interpreted the world, in various ways; the point is to change it.”

In Carr’s view, the Educational Theory tradition (as distinct from the Education tradition which it reinterpreted into a particular kind of philosophising) became introverted and self-absorbed, practised within practice architectures that directed the attention of the philosophers of education operating within that tradition principally to one another’s voices and ideas. Absorbed by arguments within the Education Theory tradition, they attended decreasingly to the concerns of the practitioners of education in the field and the profession of education. In this way, one might say, they became dislodged from the field of practice and absorbed with another field – the field they made for each other by their specific practices of philosophical communication, production, and organisation. Not surprisingly, perhaps, their preoccupations and their work became largely irrelevant to the day-to-day work of teachers – although the theorists in the tradition continued their efforts in the sincere belief that their work remained relevant to problems of contemporary education and educational practice. The field of philosophy of education they constituted by their practice was a field of (a certain kind of) philosophical practice (a practice of philosophical discourse; Hadot, 1995, p. 269), not educational practice. It was decreasingly a resource for practice, but rather a commentary on what it construed that practice to be.

Instead, Carr (2006b, 2007) calls for forms of “practical science” and practical philosophy that involve educators in investigating their own practices, for example, through forms of educational action research aimed at critically reconstructing their practices, by understanding more deeply the character and consequences of their actions. Such a practical science would seek to provide local and current answers to the enduring educational questions about the extent to which teachers’ practices foster the good for each student and the good for humankind by avoiding harmful consequences for students and their communities.

This case of a certain kind of educational theorising – the Educational Theory – tradition shows how even the most determined efforts to understand the nature and conduct of educational practice may lead away from practice rather than into it. According to the French historian of Hellenistic and Roman philosophy Pierre Hadot (1995),

... modern philosophy is first and foremost a discourse developed in the classroom, and then consigned to books. It is a text which requires exegesis. (p. 271)

He contrasts this form of modern philosophy with ancient philosophy which was what he calls “a way of life” – in which philosophical discourse only oriented people towards the living of good lives, not just having noble thoughts about how lives should be lived.

There is not space here to do more than suggest that this separation between theory and practice, based in a division of labour between theorists and practitioners, has become endemic to other realms also, in which relationships with practitioners emerge as a relationship between managers and those they manage, those who know and those who (are told what to) do.

I put it to you that there is today a relationship between managers and those to be managed in the realms of educational policy and administration, the control of initial and continuing teacher education, and the control of educational research and evaluation. In each field, professional practitioners are being brought more closely under the control of educational and administrative systems and authorities.

Under such circumstances, educators are thus confronted by an invidious choice: to conduct their practice as *praxis*, oriented by tradition and by considerations of the good for each person and the good for humankind as these are expressed in education, as *agents* of education, or to conduct themselves as *operatives* of the education systems in which they find themselves, following the rules and procedures that constitute the functional rationality of those systems. Although not without precedent, this situation has emerged with new force in the performativity required of teachers in the last two decades. A new kind of tragedy has become possible right at the heart of educational practice, in the encounter between teachers and learners – a choice between behaving professionally or compliantly. It is a tragedy with which we shall all become more familiar as the juggernaut of the national curriculum rolls through Australia in the coming years.

Teachers will increasingly be called to make a choice between, on the one hand, acting as professionally and acting educationally, for the good of each student and the good of humankind, and, on the other, doing what they are told.

Conclusion: Recovering Praxis Traditions

In the chapter “Conclusions and Challenges” in *Enabling Praxis*, Tracey Smith and I concluded that there are five challenges for the contemporary education profession and for educators:

- (1) the re-moralisation of practice, (2) the re-invigoration of professionals, (3) the revitalisation of professional associations, (4) the renewal of educational institutions, and (5) a recovery and revitalisation of educational traditions. (p. 274)

The fifth may seem the most innocuous and indirect, but I think it may also provide a reconnection with education and its purposes. What is most needed, it seems to me, is a relocation of every educator’s, every teacher’s, understandings of education as a practice in terms of the enduring question posed by the Education Tradition (as distinct from the Educational Theory tradition I also discussed). What is most needed is to have every educator enter and participate in the enduring debate about the extent to which our practice as educators *in fact* forms and develops good persons and the good for humankind.

We can only judge our success in these things in terms of history – a longer timescale than is conventional for the weekly test or annual waves of state-wide testing or Year 12 examinations – or the post-test in our empirical research study. As educators, did we produce good people? Have we produced a good society?

It is obvious, of course, that as educators, we do not have sole responsibility for the formation and development of good people and a good society. (Nor, as mathematics educators, are you solely responsible for producing good people and a good society.) We are not alone in forming students, society, the state, the economy, or the state of the planet. In addition to parents and caregivers, others – in the conduct of business, the productions of the media, the workings of the state, warfare, and global terror – have also created practice architectures that shape how human practice has produced the world in which we live today.

We, however, have our particular task, and I believe that it is one that will require greater courage to pursue than in earlier years. Our task is to do what people in the Education Tradition have always tried to do: to produce good people and a good society. It is our job to attend to this first, and to be able to debate with one another, and with other people in the communities and societies we serve, whether we are indeed doing this job. Are these good people? Is this a good community and a good society?

I believe education is under threat in the West today, and that our times will require educators to speak in defence of education. Education is being replaced by a species of administration – the administration of personhood and the administration of the state, in which persons appear only in the faded roles of consumers

and clients, emptied of their personhood and what makes them ends-in-themselves. Emptied of what is most precious – their being and becoming as persons and as fellow-citizens in what should be a good society.

Here, in this conference, it falls to you to debate whether and how the *practice* – not just the theory – of mathematics education contributes to the formation of good persons and a good society. Perhaps a Mathematics Learning Research Group of Australasia would have a different task.

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