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INVESTING IN INTELLIGENCE: A PHILOSOPHICAL AND PRACTICAL-CRITICAL INQUIRY INTO THE CHARACTER AND FORM OF A NEW EDUCATIONAL PARADIGM: A PHD RESEARCH REPORT

THE CHALLENGE OF EDUCATIONAL CHANGE

There is widespread interest, discussion and exploration globally regarding school improvement in one form or another. One of the most often cited reasons for school reform is the need to prepare the young for participation in new economic and work environments, where the basis of employment is more flexible, the required skills tend to be higher order, more diverse and continually changing, and team work is more common (e.g. Atkin 1999; Australian Council of Deans of Education 2001; Beare 2001; Blackmore 1999; Board of Teacher Registration 2002; Delors 1996; Education Queensland 1999; Elliott 2000; House 2000; Queensland School Curriculum Council 1997; Seltzer & Bentley 1999; Townsend, Clarke & Ainscow 1999).

A country's economic performance is often seen to be correlated to levels of student achievement in schools and/or to school completion rates, and education has come to serve the function of ranking and selecting not only individuals, but also states and nations. However, critics of school effectiveness research driven by such priorities argue that 'school effectiveness research "findings" not only neglects [sic] but also negates [sic]' (Elliott 1998, p. 101) the vision of education as a set of highly personal transactions addressing individually purposeful, 'dynamical' knowledge and involving complex considerations of curriculum and pedagogy. A recent UNESCO report (1998, pp. 63-64) acknowledges the tension between these educational concerns, noting that:

> …global trends in teacher education can be broadly interpreted as a shifting balance between a concern mainly to prepare teachers who can implement effectively their school systems' mandated curricula and a concern mainly to prepare teachers who can respond effectively to the diversity of students' learning needs and interests generally. In practice, this distinction is not a hard and fast one, but is mainly a question of orientation; it echoes to some extent other distinctions which are often made in education, for example, between socially utilitarian and humanistic educational purposes, or between subject-centred and learner-centred approaches to teaching.

A 'new learning' agenda, for example, seeks to 'grasp what is rhetorically or genuinely new in our times', and to leverage contemporary public discourse about a 'new economy', a 'knowledge economy', a 'knowledge society', in order to position education and educators at the heart of things (*International Journal of Learning* 2004). This 'heart' may be economic, argue proponents of new learning, but it 'must also surely be a place of open possibilities, for personal growth, for social transformation and for the deepening of democracy' (*International Journal of Learning* 2004).

Elliott (2000) argues that the relationship between education and economic performance is mediated by the way in which the cultural context of schooling shapes the educational process. Fullan (2001, pp. 268, 271) suggests that, where educational change can be guided by 'a deep theoretical understanding of the first principles of learning… [and] the first principles of change', society will be stronger as education 'serves to enable people to work together to achieve higher purposes that serve both the individual and the collective good'.

Peter Drucker, a respected authority in the field of management globally, explains that, in what he refers to as the current knowledge economy, 'unless it is seen as the task of the organisation to *lead change*, the organisation – whether business, university, hospital and so on – will not survive' (Drucker 2002, p. 73). However, as Fullan (2001, p. 9) points out, there is a great deal of evidence that many educational

change initiatives are 'poorly thought out and unconnected to the stated purposes of education… [and the] main difficulty is how to achieve coherence'. For those involved in education, then, a significant problem exists in whether we perceive a need for educational change, and if so, how we conceptualise that need.

Macklin (1976) points out that, 'seldom does any reality seek to transform itself'. Thompson and Zeuli (1999, pp. 345-346), for example, observe that perhaps the most striking thing about teachers' efforts to learn and put into practice current reform ideas is that 'it is possible - indeed, fairly common - to get a great deal right and still miss the point… of the reforms'. Similar conclusions have been drawn by other researchers (e.g. Ball & Cohen 1999, pp. 3-4; Goodlad, Klein & Associates 1970, pp. 72-73; Oakes et al. 1999, p. 242; and Stigler & Hiebert 1999, pp. 106-107). Closely related to the problem of whether and how we conceptualise the need for educational change, then, is a second significant problem, namely, that the history of curriculum change is a history of little change (Cuban 1984; Deal 1990; Fullan 2001, p. 10; Gerstner et al 1994, p. 3; Glatthorn & Jailall 2000, p. 97; Hargreaves 1994, pp. 43-44; Hood 1998, p. 3; Sarason 1990), or, as Woodrow Wilson put it so eloquently, 'It is easier to change the location of a cemetery, than to change the school curriculum' (quoted in NCREL 2004). Sungaila (1992, p. 69) argues that there is 'an urgent need to understand better the process of educational reform', evidenced by the observation that, despite billions of dollars being spent on education reform every year around the world, the quality of teaching and learning remains largely unaffected.

Hodas (1997, p. 28) suggests that schools are technologies and that there is a close relationship between schools-as-a-technology and, '...the institutional and organizational values of knowing, being, and acting on which the school itself is founded: respect for hierarchy, competitive individualization, a receptivity to being ranked and judged, and the division of the world of knowledge into discreet units and categories susceptible to mastery'. These values, along with other reductionist and mechanistic conceptual and methodological schemes employed to 'discern the present', 'calculate the future', and 'control human beings', have long dominated the field of educational administration, and remain central (Ryan 1988). Efforts to engage with change of schools-as-a-technology must address cultural, and ultimately individual assumptions and values regarding human knowing, being and acting. As Hill (1988, p. 249) argues with regard to innovation and the social shaping of technological systems, 'the most essential project of research is to delve beneath the surface of the text that is being read and written in discourse to the grammar that lies beneath'.

These two closely related problems – whether and how we conceptualise a need for educational change, and the observed resistance of school cultures to change efforts – represent a most significant challenge. Drucker (2002, pp. 3, 5) argues that,

> BASIC ASSUMPTIONS ABOUT REALITY are the PARADIGMS of a social science, such as management. They are usually held subconsciously by the scholars, the writers, the teachers, the practitioners in the field. Yet those assumptions largely determine what the discipline – scholars, writers, teachers, practitioners – assumes to be REALITY. …Yet, despite their importance, the assumptions are rarely analysed, rarely studied, rarely challenged – indeed rarely even made explicit. …[The assumptions underlying the theory and practice of management] are now so far removed from actual reality that they are becoming obstacles to the Theory and even more serious obstacles to the Practice of management. Indeed, reality is fast becoming the very opposite of what these assumptions claim it to be.

The same could certainly be said of the related field of education. In sum, then, in the field of education a significant problem exists in the current lack of a clear, coherent and viable theory of learning, agency and change, capable of making explicit the need, nature and means of educational change, of reconciling dualities such as society and individual, control and autonomy, and of explicitly informing policies, planning models, teacher learning and development, and new pedagogical practices.

THE DYNAMIC PARADIGM OF LEARNING AND CHANGE
In response to this problem, I have been engaged in recent years in a PhD inquiry into the character and form of a different paradigm of learning and change. Based on a meta-analysis of numerous theories and perspectives on human learning, knowing, intelligence, agency and change, the inquiry generated a 'Dynamic Paradigm of Learning and Change', characterised by fifteen Constructs. The theories explored

include, amongst others, perspectives on post-positivism, early phenomenology and Deweyan pragmatism, Glasersfeld's radical constructivism, Marx's philosophy of practice, Freire's gnosiological cycle of knowledge, Piaget's genetic epistemology, Koestler's creative act of bisociation, Belton's theory of art, Goleman's emotional intelligence, Sternberg's triarchic theory of human intelligence, Powers' perceptual control theory, and insights regarding four levels of knowledge from brain research. The Dynamic Paradigm of Learning and Change provides a deep and coherent framework for understanding desirable ends and means of education and of change – a framework capable of informing both design and critique of systemic curriculum and assessment policies, school organisation and planning models, teacher learning and pedagogical practice, and student learning and action. This paradigm contrasts with the assumptions reflected in the prevailing culture of institutionalised education and suggests some serious inadequacies in the conceptualisation of some current reform efforts in relation to both student and educator learning. The Dynamic Paradigm of Learning and Change identifies key aspects of the need, nature and means of changes in identity, dispositions and orientations to the world and others required of educators, in order for them to be able to assist young people to achieve similar transformational outcomes.

Construct 1
Reality is not discovered, but constructed

There can be no objective knowledge that is a direct representation corresponding with an ontological reality. Nor is language an objective entity shared by all members of a society, since the connection between sound images and meanings is actively formed by each individual language user. Meaning is not passively received, either through the senses or by way of communication, but is actively built and rebuilt by the cognising individual.

Construct 2
Human life transcends the appearance of duality

Lived existence has a dialectical quality that transcends and synthesises 'logical' and 'existential' dualities, such as individual and environment, autonomy and determinism, part and whole. Experience, here and now, also has a rich density that abstract concepts are not able to capture. Human thought, feeling, motivation and behaviour constitute a dynamic, experiential matrix of action schemes, in which no real separation of those four elements is possible.

Construct 3
Human life is purposeful

Human learning and knowing are essentially teleological, that is, they are *purposeful.* Stimulus and response are mediated by an internal reference standard – an aim/purpose/desired perception, which the individual controls for (acts to achieve or maintain). The significance or purpose underlying objects, concepts, ideas, speech or events *for the individual* constitutes their meaning. Meaning cannot be separated from actions and contexts. Interpretation of objects, concepts, ideas, speech, events, actions and contexts depends on the individual's purposes or perception of a problem.

Construct 4
Human consciousness is evolutionary

The function of cognition is adaptive, serving the individual's *organisation of the experiential world*, not the discovery of an objective ontological reality. This does *not* mean we can construct any 'reality' we wish. Meanings are evaluated in terms of fit or viability in the material or social world and consistency with the individual's system of meanings or action schemes, as a whole. The perception of constraints, whether external (experiential evidence of non-viability) or internal (logical inconsistency), limits our thinking and acting. The consequent conflict will generally cause us to initially question the authenticity of the constraints and possibly to ignore, resist or illegitimise them. If (1) we become satisfied that new logical or experiential evidence is authentic, (2) we understand *why* such constraints represent a contradiction of some aspect of our existing understanding, and (3) *it is important to us* to resolve the particular contradiction or reduce inconsistencies in order to achieve greater adaptive value, then the conflict may lead to learning, that is, to revision of action schemes or internal reference standards (the experiential goals which drive our behaviour). Recognition of non-viable action schemes, through what

we sometimes call 'mistakes', is to be greatly *valued*. Mistakes have an evolutionary function, since they provide evidence that a particular action scheme is non-viable.

Construct 5
Human individuals are autonomous agents

While human learning and knowing are *not* essentially subjective, arbitrary or relative, they *are* essentially individual. The individual is the ultimate agent in meaning making, the ultimate epistemological authority. While the individual's perception of authentic external constraints ('natural' or justifiable demands, limits or consequences) may lead to revised constructs, definitions and/or reference standards, the perception of external demands or limits imposed by *arbitrary* authority will lead to counter-control to oppose or cancel that influence. Constant or frequent counter-control efforts divert the individual's attention from monitoring internal signals, impulses and intuitions, as well as authentic external limits, and thus inhibit decision-making, spontaneous action and creative learning.

Construct 6
Human beings need to be familiar with the world around them

Some knowledge of major ways in which others in our culture organise experience (interpret the world) is important. Such 'surface' or 'conventional' knowledge (1) helps us perceive in particular ways, (2) ensures we have sufficient conceptual/linguistic compatibility with others to make participation in the practices typical of various cultural contexts viable, and (3) provides the raw material for reconstruction of meanings and creative action (reinterpretation and changing of the world).

Construct 7
Human beings are vulnerable to conditioning

The thought, feeling and behaviour of human beings can be *conditioned* by abstract concepts and 'bodies of knowledge' which we, as individuals, have not authenticated. Language can become a screen which stands between us and authentic experience, which alienates us from objects, nature, other people and ourselves. Alien, endowed meanings may become reified and entrenched, and powerfully influence what individuals consciously or unconsciously choose and choose not to perceive, and what perceptions they control for (i.e. what experiential goals drive their behaviour). Such conditioning leads to the alienated character structure typical in contemporary society.

Construct 8
Particular forms of experience alienate human beings from our selves and the world

A human being's functioning is most likely to degenerate into rigid, stereotyped patterns of thinking and largely unconsciously controlled, mechanical patterns of behaviour, when their daily experience *predominantly* takes a particular *form*, specifically, (1) when similar tasks are repeatedly encountered under relatively unchanging conditions, (2) when thought and 'knowledge acquisition' are abstract, superficial and divorced from purposeful action in authentic contexts, and (3) when aims and tasks are imposed by an external authority. When such stereotypical functioning is externally rewarded or reinforced, conditioning will be more profound. Moreover, when spontaneous, creative activity, including making 'mistakes', is likely to reduce external rewards, to meet with disapproval, or to result in tangible penalty, our orientation to the world becomes one of fear, inhibition and defensiveness. Our disposition to engage dynamically with life, and our inclination and capacity to learn through discovering and revising non-viable thought or action, are impaired or destroyed.

Construct 9
Authentic human beings can help others to become authentic

Human beings must 're-enter into' culturally endowed definitions, discourse and practices, and 'authoritative knowledge', including the statements, actions, purposes and motivations of others. They must examine them and either authenticate, reconstruct or challenge them through purposeful, creative, practical-critical activity in authentic social and material contexts. Alienated personalities, and certainly most young people, cannot achieve this alone. They need dialogue with, and the inspiration of, trusted people, who can problematise for them definitions, assumptions and real situations, and who can lead them to engage with appropriate logical and experiential procedures for considering constraints and evaluating the viability of understandings. They need guidance and modeling in how to master and

combine diverse generic practices in creative action in diverse contexts. They need 'educated' educators, who are accomplished in creative, critical practice in diverse sociocultural contexts and in transcending reified definitions and given systems, and who are engaged in changing themselves. Thus, while the individual is the *ultimate* epistemological authority, they are not the *only* valuable reference point in creative and critical meaning making.

Construct 10
Intelligence is adaptive action

Intelligent action can be thought of as consisting in a pattern of practical inquiry, which begins with an individual's or group's perception of a situation as problematic in relation to their aims or purposes, which may include concern for the welfare of other people and things. The nature of the problem is then formulated in coherent terms, conditions are observed, and ideas (meanings) relating to the problem and its solution are gathered, critically examined and possibly challenged. Habitual patterns of thought, feeling or behaviour are transcended as creative connections are sought and made, especially through intuitive and/or paralinguistic means, between previously unconnected matrices of thought or experience. Solutions suggested by such critical examination and creative category-shifting are subjected to evaluation and authentication through appropriate action, which may include many forms of explaining, communicating and/or applying the 'solution'. The value of intelligent action lies in the new, more adaptive meaning (action scheme) that the individual attaches to elements of the situation, when such evaluative action is judged by the individual to be operationally viable and consistent with the individual's aim (allowing that the individual's aim may also be voluntarily revised in the process).

Construct 11
Life is change

Change is the existential nature of human life. A dynamic and creative life is a recurring pattern of formulating in coherent terms the nature of our experience in particular contexts with reference to our purposes, and of reviewing and revising meanings, before action is selected and taken. There are many personal and social benefits to be enjoyed by purposefully engaging in change, rather than resisting change, or merely seeking to cope with it.

Construct 12
Particular forms of experience create a disposition to intelligent action

Authentic intelligence can be thought of as the capacity of the individual to make warranted action scheme change through dynamic interaction with particular material and social contexts, and reflection on internal consistency. We can think of it as the capacity to change ourselves as we change our world, that is, the capacity for *creative learning*. Educational quality and value consist in the dynamic conditions, the forms of experience and activity, which contribute to growth in authentic intelligence. Such conditions involve engagement with practices or genres that foster creative and critical thinking and expression, and the learning that enhances our ability to take action in relation to our interests and purposes.

The generic elements of an authentic school curriculum are also the generic elements of a dynamic life. They are meaning-making, -testing, -expressing and -applying procedures associated with various disciplines, such as science, philosophy, the arts, language and mathematics. They are 'generic' in the sense that they are independent of particular 'bodies of knowledge', until they are brought into purposeful use. Generic curriculum elements involve people in having purposeful experiences in the material and social world, and in that context using language and intuitive processes to:
 (1) build cognitive structures (words, concepts, theories, attitudes, meanings),
 (2) express, explain or communicate them,
 (3) apply them in actions,
 (4) test or critique the meaning, viability or value of such constructions, whether produced by ourselves or others, and
 (5) reconstruct or challenge them respectively, if found inadequate or unworkable.

Construct 13
A human being's identity can transcend definitions
With a clear awareness that the constructs or meanings with which we organise our experience and action are forever tentative and evolving, and with familiarity with the ways we can purposefully generate, communicate, apply, authenticate and/or creatively reconstruct such meanings in various social and material contexts, comes a liberating realisation that our identity is not fused with particular definitions, texts and contexts, but transcends them. Along with that realisation comes also greater psychological agility to shift attention spontaneously from one frame of reference to a normally unrelated one in order to make creative connections, and a strong sense of agency and of authenticity – the conviction that, as individuals, we can express and transform ourselves through conscious selection of those thoughts, feelings and actions we find viable.

Construct 14
Every human being is a conscious and autonomous process of becoming
With acceptance that another person's meanings for words, concepts or actions are, like our own, ultimately tentative, instrumental, personal constructs, comes a sense of an ethical imperative. It brings a greater sense of respect for the other person, their meanings and their agency, greater willingness to ask what they mean and what they want, and greater capacity for empathy and for authenticity in relationships. Such authenticity includes a willingness to express our own point of view, to disappoint, to make reasonable (hence authentic) demands, and to set justifiable limits.

Construct 15
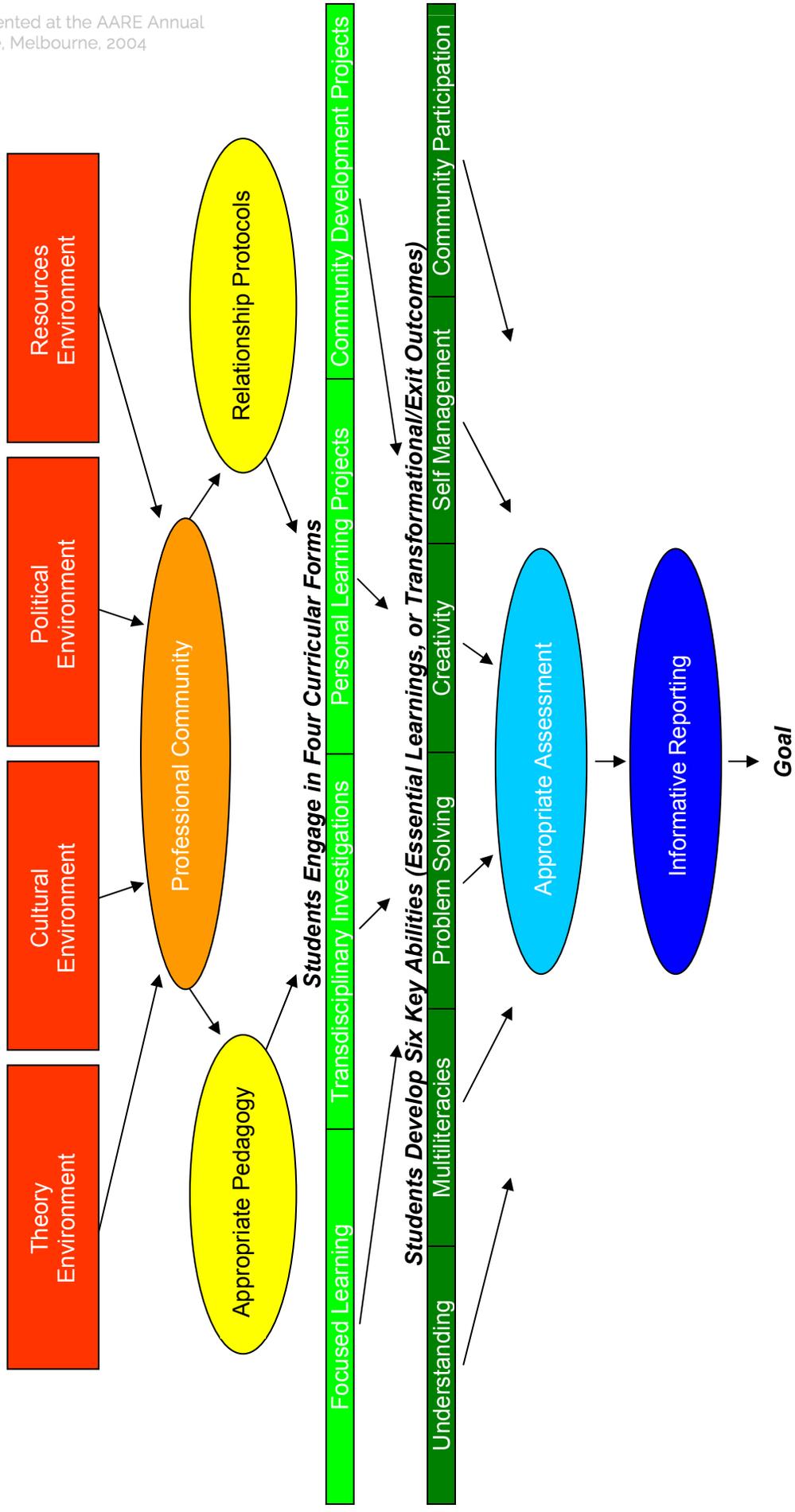**Human beings change ourselves and our world**
With the *experience* that we can coherently formulate the nature of confused, ambiguous, problematic situations and adapt to them, change them, or select different ones, comes an awareness that texts, contexts, systems and structures are not unalterable givens, but merely things that challenge us. We also come to a clear realisation that human beings are not merely objects of history, but creative and evolving agents, who can transform and humanise the world. We are then intelligence become conscious of itself.

CONCLUSION
The practical-critical aspects of this inquiry, undertaken in the context of the ferment of pedagogical and curricular discussion and exploration in Queensland between 1999 and 2003, generated insights and models relating to forms of pedagogy and curriculum organisation consistent with the Dynamic Paradigm of Learning and Change, including the Key Abilities Model (Seaton 2002a, 2002b, 2003). The Four Curricular Forms (see Figure 1) advocated in the Key Abilities Model contribute to growth in 'authentic' intelligence and enable a dialectical, experiential resolution or transcendence of 'logical' opposites, which have kept us bound in unsustainable identities, dispositions and orientations to each other and the world, such as those identified in Construct 8, above. These models, insights and resources have already attracted interest at system, school and teacher levels in several Australian states and territories, and in some international locations.

However, the Dynamic Paradigm of Learning and Change makes clear that 'adoption' of new policies, of new models of curriculum organisation, and of new teaching, learning and assessment tasks and strategies will not, in itself, lead to deep and sustained changes in the ways students experience schooling. The Dynamic Paradigm makes clear that there is also a need for appropriate kinds of teacher learning experiences that focus on coherent and viable theory, *and on action scheme change* regarding the constructs within the Dynamic Paradigm. The Dynamic Paradigm highlights the non-viability of the simplistic approach, implied, for example, in the identification of transformational outcomes and the promotion of new pedagogical strategies, to the achievement of a so-called 'shared vision' of quality student learning and teacher pedagogy. It suggests the importance of showing teachers *why* and *how* their existing visions and conceptions of learning and teaching may be inadequate, and of emphasising teachers' *conceptions* of learning, knowing, agency and teaching as things that might need to change, in order to realise the intent of educational change focused on transformational student outcomes. Moreover, the policy critique components of the inquiry found that recent educational change programs lack clear and coherent theorising of the kind of person that might justifiably become the guiding goal of

KEY ABILITIES MODEL OVERVIEW OF SCHOOL LIFE

Theory
Environment

Cultural
Environment

Political
Environment

Resources
Environment

Appropriate Pedagogy

Professional Community

Relationship Protocols

Students Engage in Four Curricular Forms

Focused Learning

Transdisciplinary Investigations

Personal Learning Projects

Community Development Projects

Students Develop Six Key Abilities (Essential Learnings, or Transformational/Exit Outcomes)

Understanding

Multiliteracies

Problem Solving

Creativity

Self Management

Community Participation

Appropriate Assessment

Informative Reporting

Goal

Individuals who: (1) are constantly authenticating or reconstructing their beliefs through experience and reflection; (2) are capable of critically analysing and transcending given texts, contexts, systems and structures; (3) are able to prosper in changeable social, cultural and economic environments; (4) have recognised and developed passions, talents and capacities which they willingly contribute to productive and cooperative purposes; (5) have a strong sense of identity, autonomy and self-efficacy; and (6) have a genuine respect for themselves and others.

Figure 1: Key Abilities Model Overview of School Life

reformed school education, which is provided by the Dynamic Paradigm of Learning and Change (especially by Constructs 13, 14 and 15).

Consistent with the Dynamic Paradigm of Learning and Change, Fullan (2001, p. 45) acknowledges that *changes in teachers' beliefs and understandings are essential* to achieving deep and sustained reform. He argues the need for a 'nonlinear', iterative process of educational change involving two 'phases' (Fullan 2001, pp. 267-269). In one phase, the 'incentive system of accountability and professional development' should focus on priorities, which include educators acquiring 'a deep theoretical understanding of the first principles of learning'. In the other phase, 'a capacity-building strategy' should prepare educators for exploring 'context-based solutions, which by definition require local problem-solving'. It is a significant weakness of some current reforms that what they seek to embed in professional learning and practice is not coherent and viable theory of learning, knowing and acting, but tasks, materials and strategies.

However, even more deeply than changes in teachers' understandings and action schemes regarding 'why' they might adopt certain practices in support of student learning and acting, the Dynamic Paradigm of Learning and Change makes clear the nature of what Education Queensland (1998, p. i) referred to as a new way of 'being' required of teachers, in order for them to be 'central agents' in 'a cultural shift'. Constructs 9, 12, 13, 14 and 15 characterise the changes in identity, dispositions and orientations to the world and others required of educators, in order for them to be able to assist young people to achieve similar transformational outcomes.

The Dynamic Paradigm suggests that it is the pattern of dynamic interaction between authentic contexts and constraints on one hand, and autonomous and purposeful meaning making on the other, that should characterise students' learning and action, teachers' facilitation of students' learning and action, school leaders' facilitation of teachers' professional learning and practice, and systemic facilitation of school leaders' learning and management of school operations. This approach specifies crucial aspects of a notion of productive leadership. Those aspects are suggested by many of the Constructs within the Dynamic Paradigm and by the Constructs as a set, but are made clear especially by Constructs 9 and 14. The Dynamic Paradigm of Learning and Change makes clear why approaches to school-based management that do not reflect that paradigm are likely to be ineffective in making a positive and significant difference to student learning outcomes.

REFERENCES
Atkin, J. 1999, *Reconceptualising the Curriculum for the Knowledge Era: Part 1 – The Challenge*, Seminar Series No. 81, IARTV, Melbourne.

Australian Council of Deans of Education 2001, *New Learning: A Charter for Australian Education*, Australian Council of Deans of Education, Canberra.

Ball, D. & Cohen, D. 1999, 'Developing practice, developing practitioners: Towards a practice-based theory of professional education', in L. Darling-Hammond & G. Sykes (eds.), *Teaching as the Learning Profession: Handbook of Policy and Practice*, Jossey-Bass, San Francisco, pp. 3-32.

Beare, H. 2001, *Creating the Future School,* Routledge Falmer, London.

Blackmore, J. 1999, *Framing the Issues for Educational Re-design, Learning Networks and Professional Activism,* Australian Council for Educational Administration, Hawthorn.

Board of Teacher Registration 2002, *Professional Standards for Graduates and Guidelines for Pre-Service Teacher Education Programs,* Brisbane.

Cuban, L. 1984, *How Teachers Taught: Constancy and Change in American Classrooms, 1890-1980*, Longman, New York.

Deal, T. 1990, 'Reframing reform', *Educational Leadership*, May, pp. 6-12.

Delors, J. 1996, *Learning: The Treasure Within,* Report to UNESCO of the International Commission on Education for the Twenty-first Century, UNESCO Publishing, Paris.

Drucker, P. 2002*, Management Challenges for the 21st Century,* Butterworth-Heinemann, Oxford. First published 1999.

Education Queensland 1998, 'Leading schools update vol. 2, no. 2', *Education Views*, vol. 7, no. 3, 20 February, Education Queensland, Brisbane.

Education Queensland 1999, *The Next Decade: A Discussion About the Future of Queensland State Schools: Queensland State Education – 2010*, Office of Strategic Planning and Portfolio Services, Education Queensland, Brisbane, April.

Elliott, J. 1998, *The Curriculum Experiment: Meeting the Challenge of Social Change,* Open University Press, Buckingham.

Elliott, J. 2000, 'Towards a synoptic vision of educational change in advanced industrial societies', in H. Altricher & J. Elliott (eds.), *Images of Educational Change,* Open University Press, Buckingham.

Fullan, M. 2001, *The New Meaning of Educational Change*, Teachers College Press, New York.

Gerstner, L., Semerad, R., Doyle, D., & Johnston, W. 1994, *Reinventing Education: America's Public Schools*, Dutton, New York.

Glatthorn, A. & Jailall, J. 2000, 'Curriculum for the new millennium', in R. Brandt (ed.), *Education in a New Era,* Association for Supervision and Curriculum Development, Alexandria, Va.

Goodlad, J., Klein, M., & Associates 1974, *Looking Behind the Classroom Door: A Useful Guide to Observing Schools in Action*, Charles A. Jones, Worthington.

Hargreaves, D. 1994, *The Mosaic of Learning: Schools and Teachers for the New Century*, Demos, London.

Hill, S. 1988, *The Tragedy of Technology: Human Liberation Versus Domination in the Late Twentieth Century*, Pluto Press, London.

Hodas, S. 1993, 'Technology refusal and the organisational culture of schools', *Education Policy Analysis,* vol. 1, no. 10, 14 September. Also at <http://olam.ed.asu.edu/epaa/v1n10.html> (accessed 29 November 2004).

Hood, D. 1998, *Our Secondary Schools Don't Work Anymore*, Profile Books, Auckland.

House, E. 2000, 'Economic change, educational policy formation and the role of the state', in H. Altricher & J. Elliott (eds.), *Images of Educational Change,* Open University Press, Buckingham.

International Journal of Learning 2004, Scope and concerns: New learning, Common Ground Publishing, <http://l05.cgpublisher.com/themes.html> (accessed 29 November 2004).

Macklin, M. 1976, 'Learning from the workers. Research for conscientisation: A role for philosophy of education', Paper presented at the AARE Conference, Brisbane.

NCREL 2004, 'Indicator: Alignment', North Central Regional Educational Laboratory, <http://www.ncrel.org/engauge/framewk/efp/align/efpaliin.htm> (accessed 29 November 2004).

Oakes, J., Quartz, K., Ryan, S., & Lipton, M. 1999, *Becoming Good American Schools*, Jossey-Bass, San Francisco.

Queensland School Curriculum Council 1997, *Interlink*, no. 6, October.

Ryan, J. 1988, 'Conservative science in educational administration: Knowledge, power, and truth', *Journal of Educational Administration and Foundations*, vol. 3, pp. 5-22.

Sarason, S. 1990, *The Predictable Failure of Educational Reform: Can We Change Course Before It's Too Late?* Jossey-Bass, San Francisco.

Seaton, A. 2002a, 'Reforming the hidden curriculum: The Key Abilities Model and four curricular forms', *Curriculum Perspectives*, April, pp. 9-15. Also at <http://www.andrewseaton.com.au/reform.htm> (accessed 29 November 2004).

Seaton, A. 2002b, 'Four curricular forms: Supporting literacy in middle-school programming', in B. Gordon (ed.), *Practical Literacy Programming*, Primary English Teaching Association, Newtown, pp. 93-107. Also at <http://www.andrewseaton.com.au/fcf.pdf> (accessed 29 November 2004).

Seaton, A. 2003, 'Literacy, learning and pedagogy', *Australian Journal of Middle Schooling*, vol. 3, no. 1, May, pp. 24-28. Also at <http://www.andrewseaton.com.au/llp.htm> (accessed 29 November 2004).

Seltzer, K. & Bentley, T. 1999, *The Creative Age: Knowledge and Skills for the New Economy,* Demos, London.

Stigler, J. & Hiebert, J. 1999, *The Teaching Gap: What Educators Can Learn from the World's Best Teachers*, The Free Press, New York.

Sungaila, H. 1992, 'Educational reform and the new 'Theory of Chaos'', in F. Crowther & D. Ogilvie (eds.), *The New Political World of Educational Administration*, Australian Council for Educational Administration, Hawthorn.

Thomson, C. & Zeuli, J. 1999, 'The frame and the tapestry: Standards-based reform and professional development', in L. Darling-Hammond & G. Sykes (eds.), *Teaching as the Learning Profession: Handbook of Policy and Practice,* Jossey-Bass Publishers, San Francisco.

Townsend, T., Clarke, P., & Ainscow, M. 1999, 'Third millennium schools: Prospects and problems for school effectiveness and school improvement', in T. Townsend, P. Clarke, & M. Ainscow (eds.), *Third Millennium Schools: A World of Difference in Effectiveness and Improvement,* Swets & Zeitlinger Publishers, Lisse.

UNESCO 1998, *World Education Report 1998: Teachers and Teaching in a Changing World,* UNESCO Publishing, Paris.