



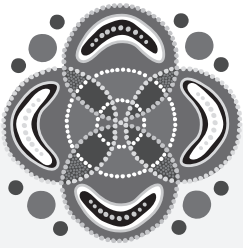
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This is the authors' version of an article published in *Beyond Band-aids: Exploring the Underlying Social Determinants of Aboriginal Health. Papers from the Social Determinants of Aboriginal Health Workshop, Adelaide, July 2004* - See more at: <http://www.lowitja.org.au/beyond-band-aids#sthash.gyfgKbNR.dpuf>. The original publication is available at: <http://www.lowitja.org.au/beyond-band-aids>

Please cite this article as: Askell-Williams, H., Coughlan, P.M., Lawson, M.J., Lewis, F., Murray-Harvey, R., O'Donnell, K.M., et al. (2007). You can't have one without the other: Transactions between education and wellbeing for Indigenous peoples. In I. Anderson, F Baum, M. Bentley, ed. *Beyond Band-aids: Exploring the Underlying Social Determinants of Aboriginal Health*. Casuarina, NT, Australia: Cooperative Research Centre for Aboriginal Health. Social Determinants of Aboriginal Health Workshop. Adelaide, SA. Jul 2004, pp. 56-76.

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Chapter 4: You Can't Have One without the Other—Transactions between Education and Wellbeing for Indigenous Peoples

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Introduction

This chapter was written in a spirit of collaboration involving Indigenous and non-Indigenous teachers and researchers. The ideas it contains were generated in the course of a series of shared meals involving the authors, at which lively discussion centred around educational and wellbeing issues affecting Indigenous peoples.

We start with a story from one of our authors that tells about the possibility of change. The need for change is highlighted by a short review of the dire situation in health and education for many Indigenous peoples. We argue firstly for a recognition of the importance of transactions, or reciprocal relations, among elements of complex systems such as education and health. We review existing literature on the education–health nexus and consider the applicability of extant research findings to the situations of Indigenous Australians. We then consider contemporary issues in education, such as constructivism and self-regulated learning, with a view to considering how these might inform recommendations for change. A number of areas where change could be effected are then discussed. The first of these involves re-conceptualisation of the multi-level system that influences outcomes in education and wellbeing. Change is also required in the theoretical perspectives used to inform the educational research agenda, in consideration of where, and with whom, educational efforts might be made. We consider how recent research on conceptual change might provoke new locations and imperatives for educational action. Finally, we recommend areas for future research such that ensuing practices are founded on good quality knowledge.

The themes in Uncle Badger's story are central to this paper. We do need to look after our country and the people in it. The urgent need to look after people is made very clear when we consider the statistics related to the health and education of Indigenous groups. We do need to work together, not only as individuals, but also as a social system. In addition, like both Kim and Uncle Badger in the above story, as a nation we need to be prepared to learn and to have the courage to change.

Uncle Badger's story

As told by Kim O'Donnell of the Barkindji people of western New South Wales

I'd like to share a story with you about my Uncle Badger. It's a story about changing mind-set and how a conversation about making connections, respect, the need for positive male role models in our family and breaking down barriers has made a difference in the way my Uncle 'does business'.

Four years ago, I travelled home to Wilcannia for my cousin's funeral. He was in his early twenties and had taken his own life after his girlfriend ended their relationship. All the family was at a loss as to how this could have happened—after all, he had a permanent job, his own car, his own place to rent, plenty of family to stay with no matter where he travelled and people who loved and cared for him.

A day after the funeral, I visited Uncle Badger and we yarned over a few bottles of red, trying to understand what happened. We talked, we argued, we listened to each other, we cried together, we swore and, in between, we managed to have some good belly laughs. By this stage, I felt comfortable enough to confront Uncle Badger and let him know how disappointed I feel when I see my uncles arguing and swearing aggressively at each other, all because they have different opinions and different ways of dealing with things. I pointed out that nothing gets done when he (Uncle Badger) tells people to go and get stuffed and then walks out in the middle of a meeting. (Uncle used a more expletive word here but it would be inappropriate for me to repeat it. I'm sure you have all used this word from time to time.)

I said, 'Bloody hell, if you and Uncle showed some respect for each other and made a pact to listen and work together to resolve your problems, you'd move mountains! You're so bloody competitive against each other and your actions do bugger-all to encourage or help our young people. You are not positive role models for our young boys when you carry on like that. They see it as acceptable behaviour and react in the same way to confrontation.'

I said, 'How the hell are we supposed to break down the barriers between blackfellas and whitefellas and work together when we can't break down the barriers between ourselves or be decent role models for our children. Can't you see, Uncle? Our people's health has gotten worse over the last twenty-five years. There's a huge service industry built on improving Aboriginal health. All these services out there but they're not connected—they're too busy competing against each other for the power and resources, just like you and Uncle and our people continue to fall through the gaps.'

He roused on me and said that I shouldn't speak to my Elder that way and that I was disrespectful. I said, 'Uncle, ya gotta give respect to earn respect'.

After that comment, I thought, well, there goes my bed for the night—I'll have to camp outside.

About two months later, another family meeting was held. Unfortunately I couldn't make it. However, I heard on the grapevine how proud my family was of Uncle Badger. Instead of getting angry and walking out when someone disagreed with his point of view, he was the one who stood up when tempers flared, and reminded everyone that it was important to respect each other's opinions, to listen to each other and not interrupt when someone was speaking and that we needed to work together. He ended with, 'How are we supposed to break down the barriers between us and white fellas when we keep fighting among ourselves. We gotta work together.'

When I rang my Uncle to ask his permission to tell this story, he replied, 'Yeah, niece, you can tell it and you can tell them fellas this message from Uncle Badger, too: We all Australians, but Aboriginal people were here first then white people came along. Now, we all gotta sit down and come to some agreement how we can all look after our country and respect Aboriginal culture.'

Enduring expectations

In the 1968 Boyer Lectures, Stanner (1969) discusses how white people's colonisation of Aboriginal land and appalling treatment of Aboriginal peoples was based upon the incorrect assumption that Australian land was without ownership. Colonisation decimated the Aboriginal peoples' deep wells of cultural, scientific and spiritual knowledge, disempowered their complex social networks, and marginalised Aboriginal peoples and their issues. However, Stanner also felt that following the 1967 referendum, which supported equal suffrage for Aboriginal peoples and the development of a new swell of awareness in the general populace, that Aboriginal peoples would re-enter Australian society with greater prominence. Stanner writes:

development over the next fifty years will need to change its style and philosophy if the outcome is to be very different. I have begun to allow myself to believe that there is now a credible prospect of that happening (1969:28).

Twenty-five years later, another series of Boyer Lectures included papers by Noel Pearson (1994), executive director of the Cape York Land Council, and Manduway Yunupingu (1994), lead singer in Yothu Yindi, traditional owner of Gumatj land and principal of Yirkala school. Pearson refers to 'The shameful health, sanitation, educational, employment and housing conditions of black Australians' (1994:100).

Like Stanner, Pearson also showed optimism, drawing attention to the High Court's finding in the 1992 Mabo case, that British Crown sovereignty over Australia did not extinguish 'the beneficial title of the Indigenous inhabitants which they held under their own laws and customs' (Pearson 1994:97).

For many Australians both black and white, Mabo represents an opportunity for the achievement of a greater national resolution of the question of Aboriginal land rights, and an improvement in relations between new and old of this land, a first step in a new direction which might yield the changes necessary for Indigenous people to be genuinely re-possessed of their inheritance (Pearson 1994:98).

Yunupingu (1994) also speaks with optimism about finding a balance between different cultures' ways of knowing, between traditional Indigenous education and European-style education, and about respecting the contributions of immigrants and the original inhabitants of Australia.

Despite the optimism of these commentators across several decades, the situation of Indigenous peoples in health and education has not shown marked improvement: Pearson's 'shameful conditions' assessment still applies.

The statistics

The current health-related statistics for the Indigenous peoples of Australia have shown little improvement in the past twenty-five to thirty years (Peachey 2003). Disease rates for Indigenous Australians are many times those of non-Indigenous Australians (ABS 2005). From 1999–2003, Indigenous men and women died at almost three times the rate of their non-Indigenous counterparts, and also had higher rates of mortality from all major causes of death. For example, mortality rates for Indigenous males and females for endocrine, nutritional and metabolic diseases (including diabetes) were around seven and eleven times those for non-Indigenous males and females (ABS 2005). The average age of death for an Indigenous male is 59.4 years and 64.8 years for an Indigenous woman, which is approximately seventeen years less than the average age in the total population (HealthInfoNet 2004).

The statistical picture of Indigenous peoples' education is worrying. McRae *et al.* (2002) and a recent Australian Bureau of Statistics report (ABS 2005) both report positive findings, pointing out that Indigenous peoples' participation in early childhood and primary schooling has improved dramatically: Year 12 retention rates have increased, from under 29.2 per cent in 1996 to about 39.5 per cent in 2004, and participation rates of fifteen- to twenty-four year-old Indigenous students in vocational training approximately equate with those of the total population.

However, these same sources also provide statistics indicating that, compared with non-Indigenous students, Indigenous Australians, among other things:

- are less likely to attend preschool;
- fall well behind mainstream rates in literacy and numeracy skills development before leaving primary school;
- have less access to secondary school in their communities;
- leave school much earlier;
- are less than half as likely to complete Year 12;
- are more likely to be taking bridging and basic entry programs in universities and vocational education programs;
- are under-represented in higher education, with the rate of participation remaining static across 1997–2003; and
- obtain fewer and lower-level qualifications (McRae *et al.* 2002:5).

There is much ground to be made up if the following objective in the Adelaide Declaration on National Goals for Schooling is to be achieved: '[That] Aboriginal and Torres Strait Islander students have equitable access to, and opportunities in, schooling so that their learning outcomes improve and, over time, match those of other students' (MCEETYA 1999:3).

Health as wellbeing

In its constitution adopted on 22 July 1946, the World Health Organization (WHO) stated that 'the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being, without distinction of race, religion, political belief, economic or social condition,' and defined health as 'a state of complete physical, social and emotional wellbeing and not just the absence of disease or infirmity' (Commonwealth of Australia Department of External Affairs 1948). Thus, as a signatory to the WHO constitution, Australia agrees that health is a human right and that this right includes the creation of good health, not just dealing with disease after it arises. Health business is, therefore, not solely the responsibility of those who cure disease; the creation of positive health outcomes requires the participation of a range of individuals, groups, institutions, government departments, educators and Indigenous communities themselves.

It is still the case, however, that much 'health' data does not reflect the WHO positive definition, and provides limited information upon which to base policies and programs. In the case of Indigenous peoples, Kirke and colleagues (1993) argue that clinical parameters of morbidity and mortality are inadequate indicators of health status because they neither show people in connection with their community and the wider environment, nor reveal the positive aspects of community life (Peppard 2002:187). Recognising the limitations of biomedical approaches to health data collection, Kreiger proposes an eco-social model 'which specifies a range of questions about social structure, cultural norms, ecologic milieu... [that] directs epidemiologists to think about individuals in the context of their everyday lives, as shaped by their intertwined histories' (Kreiger 1994:897).

Kreiger's writing has much in common with the 1946 WHO constitution and with the 1999 WHO Declaration on the Health and Survival of Indigenous Peoples:

Indigenous people's concept of health and survival is both a collective and an inter-generational continuum encompassing a holistic perspective incorporating four distinct shared dimensions of life. These dimensions are the spiritual, the intellectual, the physical, and emotional. Linking these four fundamental dimensions, health and survival, manifests itself on multiple levels where the past, present, and future co-exist simultaneously (cited in Durie 2003:510).

Kreiger points out that the health of all organisms is interconnected and emphasised the need:

to shift discussion away from the term person when what is really meant is social group and shift attention away from the notion of 'special' group to focus on what makes populations 'special'—their enforced marginalisation from positions of power (Kreiger 1994:898–9).

Importantly:

*In Aboriginal terms, being 'healthy' is understood to encompass the wellbeing of an individual within his or her total environment, including the extended family and community. Health business includes matters such as regaining tenure over tribal lands, ensuring kids have tucker, being able to undertake social responsibilities and participate in ceremonial life (Kirke *et al.* 1993:99).*

Thus, although inequalities in health status are a measure of the comparative quality of the health systems (Durie 2003), the determinants of wellbeing are not located solely in those systems. Instead, these determinants are embedded in the overall social structure, in political, economic and educational systems, in cultural imperatives, and in local community and Indigenous and non-Indigenous peoples' actions (Boughton 2000; Durie 2003; Jackson & Ward 1999; Main & CRCATH 2003; Wilkinson & Marmot 2003).

Wilkinson and Marmot (2003) through their analysis of thousands of research studies, some of which followed tens of thousands of people over decades, identify ten social determinants of health. Their work is particularly salient for Indigenous Australians because, arguably, all of those social determinants are relevant to them due to the occupation of their country, their decimation by European diseases and a succession of government policies that removed not only their land and means of livelihood, but also their children. In addition, policies that devalued Indigenous cultures led to loss of languages and traditions and the interruption of the transmission of cultural knowledge.

Wilkinson and Marmot describe a social gradient, where the more disadvantage a group experiences, the shorter the life expectancy and the more diseases they experience: 'The longer people live in stressful economic and social circumstances, the greater the physiological wear and tear they suffer, and the less likely they are to enjoy a healthy old age' (Wilkinson & Marmot 2003:10).

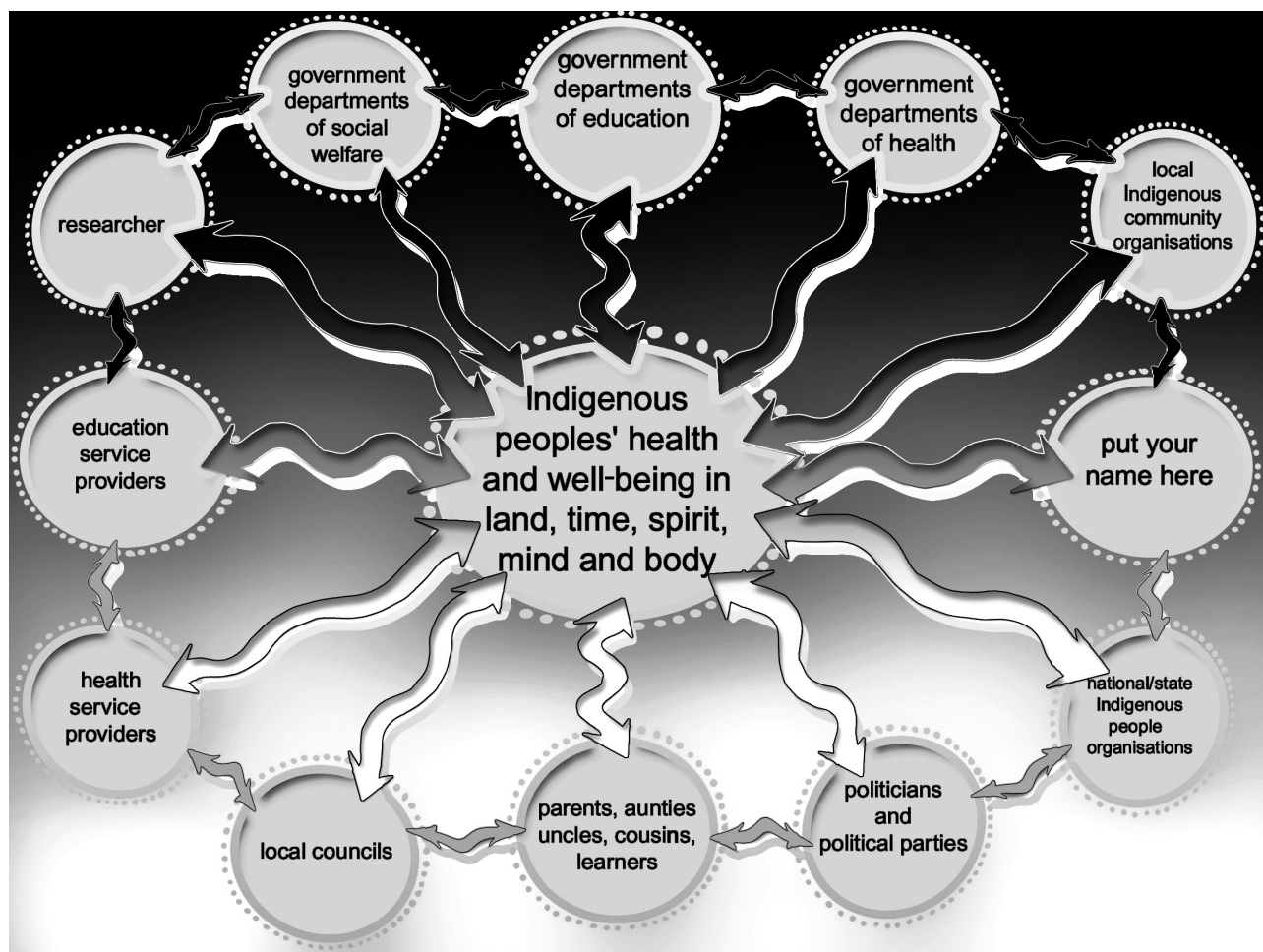
The social determinants of health include the lifelong importance of 'early childhood and the effects of poverty, drugs, working conditions, unemployment, social support, good food and transport policy' and social exclusion (Wilkinson & Marmot 2003:7). In particular, Wilkinson and Marmot (2003:16) demonstrated that social exclusion results from 'racism, discrimination, stigmatization, hostility and unemployment' and 'these processes prevent people from participating in education and training, and gaining access to services and citizenship activities'. In a similar vein, Boughton (1999; 2000) argues that the nature of the structures that sustain the process of marginalisation of Indigenous peoples, and their limited participation in education, needs to be examined.

A transactional model of relationships

In light of the above discussion of the social determinants of health, we suggest that the current education–wellbeing relationship for Indigenous peoples needs to be reconceptualised so that it is situated within a broader system, whereby the various components are mutually regulating. Our attempt to represent this transactional system (see Figure 1) suggests that explicit recognition of complex patterns of relationships must be the starting point for any action in Indigenous education that is expected to bring about change in health status. The transactional nature of education and wellbeing implies that the influence of education needs to be identified at the points of intersection of multiple relationships. If the influence of education is considered to be confined to one sphere, such as schooling, our conceptualisation in Figure 1 suggests that such influence will, at best, have only a limited impact on wellbeing. Further, if the influence of education on wellbeing is isolated from the other sets of influences shown in Figure 1, it seems unlikely that the current situation will improve very quickly.

Figure 1 is not an exhaustive representation of all potential stakeholders and their relationships in this field. However, it does go some way towards illustrating that education is part of a multidimensional and interacting network of relationships associated with wellbeing. Some analyses of the role of education in Indigenous affairs tend to underplay this complexity. For example, although the Adelaide Declaration on National Goals for Schooling recognises the pathway from education to employment, it does not highlight a pathway from education to wellbeing. And conceptualisation of the education–wellbeing relationship as a complex interactive system brings into consideration health issues that impact upon education. For example, the National Inquiry into Rural and Remote Education (HREOC 2000) heard evidence about high rates of disability and illness that affected Indigenous students' attendance and ability to learn at school. Malnutrition, hepatitis B, anaemia, vision disabilities and hearing disabilities all disproportionately affect Indigenous students and impact upon their educational outcomes.

FIGURE 1: A transactional model of relationships impacting upon Indigenous peoples' wellbeing



It is also important to realise that the education–wellbeing transaction does not only operate at an individual level of influence. Healthy communities also influence educational outcomes. The National Enquiry into Rural and Remote Education observed that ‘where parents and community members play an active and decision-making role in the school, students enjoy their schooling and feel optimistic about their current and future prospects’ (HREOC 2000:57).

Evidence of the importance of parental and community support for students’ educational outcomes is also shown in Mercurio and Clayton’s (2001) analysis of the reasons underlying the success of Aboriginal students who completed the South Australian Certificate of Education.

Prior research on the education–wellbeing relationship

At a general level there is support for the view that higher levels of educational attainment are associated with better health status (ABS 2005). However, both the factors contributing to this association and the degree to which it can be applied to the Australian Indigenous population remain areas for future research.

Caldwell (1989) identifies two kinds of evidence of the relationship between education and infant and child mortality. The first is that as parental education increases, infant and child mortality declines (Boughton 2000; Caldwell 1989;

Caldwell, Reddy & Caldwell 1989; Lindenbaum, Chakraborty & Elias 1989; Simons 1989). The second body of evidence is that increased levels of education in the whole society lead to decreased infant mortality. Indeed, infant mortality and life expectancy are more closely related to formal education than any other characteristic, including health inputs, nutrition and income (Caldwell 1989).

Caldwell (1989) proposes that studies of third world populations suggest that a key effect of increased education upon health is the development of greater autonomy among female students, which leads to women being more willing to use health services, more confident in asking staff attend to their children and better able to adhere to practitioners' directions. However, other explanations are also possible, as would be expected in a transactional system. For example, in the third world studies, educated women were seen to be more likely to gain better paid employment and/or to marry educated or more financially well-positioned husbands. Such changing circumstances could lead to one or more whole-of-life improvements, such as better living conditions, less onerous physical work, improved maternal and child nutrition, later age pregnancies, higher birth-weights and subsequently better infant and child health (Cleland & Jerome 1989; Lindenbaum, Chakraborty & Elias 1989).

It is also important to recognise, as Lindenbaum and colleagues (1989) point out, that the education–health relationship might not be simple and direct, but may be mediated through learned school-embedded attitudes and behaviours. For example, the third world, schooled mothers in the studies by Lindenbaum and colleagues knew that it was a good idea to take their sick children to health care centres. They also engaged in behaviours such as hand-washing, not because of an underlying germ-theory of disease, but as a valued pattern of schooled behaviour. Similarly, Caldwell (1989) suggests that the impact of mass health promotion interventions were due less to the health promoting content of what is taught, and more to the new self-perceptions that educated parents develop about their capabilities.

However, existing research needs to be re-examined from two perspectives. The first is to consider whether the increased education–better health relationship found in third world populations holds true for the fourth world—the world of the dispossessed minority Indigenous peoples of Australia (and other countries) (Boughton 2000; Gray, Boughton & CRCATH 2001). And if such or similar relationships do hold with Australian Indigenous populations, the second consideration is, What are the components of education that contribute to the education–health dimension? (Caldwell 1989; Simons 1989; Tsey *et al.* 2003).

Applicability to Indigenous Australians

In relation to the first issue, McInerney (1991) draws attention to the inappropriate practice of extrapolating theories, principles and methodologies that were originally grounded in American and Western European populations to other societies and cultures. Resulting deficit explanations of minority group poor performances compared to Western norms divert attention away from deficiencies in the education systems. McInerney also calls into question the practice of extrapolating results found in one Indigenous community to other Indigenous communities.

For example, although Caldwell (1989) proposes a linear relationship between more education and better health, Gray and colleagues (cited in Gray, Boughton & CRCATH 2001) found a non-linear relationship between the level of education of Australian Indigenous women and the survival of their children. Although, the lowest survival of children was for least educated mothers, the highest child survival was for mothers who left school at age fifteen, not for more educated mothers. It may be, as Gray speculates, that the non-linear result was an artifact of the data, in that mothers with more schooling provided more detailed responses, creating the impression that their children were at a greater risk of death. The lack of research that would clarify this situation reinforces the view put by Gray and colleagues (2001) that little other research into the education–wellbeing relationship has been undertaken among Indigenous peoples living as minorities in first world countries, which is the case for Indigenous peoples in Australia.

There is also a possibility that the positive health effects of schooling that have been found in third world populations may be cancelled out for Australia's Indigenous peoples because of the socially exclusionary policies and practices that extend to school classrooms (Malin & CRCATH 2003).

Indigenous Australians are enrolled in schools that they may view as belonging to a society from which they are excluded. In this regard, Boughton (2000) points to the danger of ascribing disadvantage to Aboriginality, rather than to disadvantage *per se*, thus racialising explanatory frameworks and engendering a 'blame the victim' effect. Crude representation of the issue in this way can also mask 'the enormous differences, in terms of needs and aspirations, and of programs required' (Boughton 2000:5).

These perspectives indicate that there is a need to reconsider how the education–wellbeing relationship is viewed at a broad, macro level. There is a similar need to consider how education and wellbeing relate at a much more specific level. For example, the sometimes inordinate demands made by government organisations on people's English literacy skills and knowledge of processes can have the effect of preventing young people, parents and communities from making applications for, and thus gaining access to, funding for educational and other programs (Alston & Kent 2003).

Influences at the specific level are also evident when considering the way people perceive their own capabilities. Self-capability is central to Simon's (1989) proposition that an individual's attributions to the cause of, and sense of control over, life events play a key role in the impact of education on health outcomes. Patterns of attribution of cause, including attributions about the locus of control for outcomes, may be adaptive or maladaptive to effective functioning as an individual and in society (Graham 1991; Weiner 1985). Thus, control and empowerment cannot be ignored in discussions of Indigenous peoples' health (Malin & CRCATH 2003; Tsey *et al.* 2003) and education (Boughton 1999, 2000).

The complexity of the education–wellbeing relationship is further illustrated if one considers the issues affecting Indigenous students' capacity to complete secondary schooling. These include: institutional peer and teacher racism in school environments; ineffective racial harassment policies; ineffective grievance procedures; lack of respect and value for all cultures; poor communication processes with individuals, peers, parents and communities; confusion about the roles of Aboriginal education workers; the need for cultural awareness training of teachers and counsellors; the need for support structures such as dedicated spaces for Indigenous students' homework and tutoring assistance; population transience; and poverty (Rigney, Rigney & Hughes 1998). The range of factors in this list reinforces the need to conceptualise that the education–wellbeing relationship exists within a complex network of relationships.

Another example is provided by findings from a Department of Human Services and Flinders University collaborative research project (Slee & Murray-Harvey, in press) involving 500 families living in urban South Australia who were identified by the Socio-Economic Index for Areas (ABS 2004) as living in areas of relative socio-economic disadvantage. The sample included 7 per cent of parents and 11 per cent of children (0–7 years) who identified as Aboriginal or Torres Strait Islander peoples. The study established a link between education, poverty and child health outcomes; in particular that low education and financial hardship were significantly related to poor child health outcomes. The higher the percentage of parents with less than nine years of schooling, the higher the percentage of families reporting problems/concerns for their children in the physical domain, and the higher the percentage of families with problems/concerns. Similarly, the higher the percentage of families reporting that they cannot make financial ends meet, the higher the percentage of families with children reported as having developmental problems/concerns.

This above discussion illustrates that there is much to be discovered about the education–wellbeing relationship in the Indigenous population. As well as extending what is known about the impact of wellbeing on education and education on wellbeing, there is a need to explore the relationships with other influences such as those included in Figure 1. In addition there is a need to base future research on a more comprehensive and explanatory, and therefore more powerful, representation of the nature of learning and teaching. In the next section we outline key components of such a representation.

Contemporary perspectives on learning and teaching

Situated learning

It is striking that much of the existing literature on the education–health relationship that is based upon sociological, anthropological and policy research identifies themes that are also central to contemporary psychological analyses of learning and teaching. In this latter body of knowledge, represented in the broad overviews presented in texts like that of Bruning, Schraw, Norby and Ronning (2004) and McInerney and McInerney (2002), learning and teaching are represented as situated, socio-cultural activities focussed on the development of self-regulated learners who will be

confident and persistent problem solvers in school and in their adult lives. The goal for education, from a situated learning perspective, is to enable students to develop the knowledge, skills and attitudes that will allow them to exert what Bruner (1996) refers to as 'agency'—the ability to act effectively in their interactions with the worlds in which they live and work.

Active learning

A second key principle in the educational literature is that learners build powerful, well-connected structures of motivation, knowledge and belief based upon the foundations of what they already know. The general term for this concept is psychological constructivism (Phillips 2000), although within this general term there are variations in approach. From a psychological constructivist perspective, the learner is not a passive observer of people and events who is acting like a sponge absorbing water; rather, the learner is an active agent in his or her own learning, 'continuously involved in cognition about self and environment' (Winne & Butler 1994:5738).

Students must... create meaning for themselves and... (these meanings)... are not simply a function of what teachers intend them to learn. Students make meaning from the tools they bring with them... the backlogs of their experiences and the 'languages' they know how to use. (Eisner 2000:344)

Self-regulated learning

To a significant extent, all learning is under the control of the learner. This is particularly evident when we consider learners' motivations for engagement in school. Students must have both an appropriate level of expectancy that their efforts to learn will be rewarded, and an incentive to engage with the learning task (Feather 1982). It is also clear that students' levels of self-efficacy and their patterns of attribution for the causes of success and failure (Weiner 1985) will influence their engagement and persistence in the face of difficulty. Where students' motivations are not adaptive for a learning task, it is likely that they *will* exercise control, and decide not to engage with the task. McInerney's analysis suggests that the variables which influenced Indigenous students' levels of motivation at school and their

decisions to continue beyond the minimum leaving age were centred on the 'sense of self: self-reliance confidence and goal direction' (1991:167). Like Mercurio and Clayton (2001), McInerney argues that the sense of self of the Indigenous students in his study was buttressed by parental and school community support.

Consideration of the self-regulated nature of learning indicates that we also need to be concerned about whether students know how to be effective learners in school and in other contexts. Often we overlook the important fact that knowledge of how to go about learning, and of how to carry out different learning activities, is not an automatic outcome of experience in learning. Effective learning depends on the sensitive recognition of the existing situation of the learner. In making this point, we are arguing that the 'existing situation' of the learner needs to be seen as a broad life situation that includes:

- the learner's beliefs about self, society and about schooling;
- current family and community situations;
- goals and expectations for participation in school and beyond;
- current knowledge and skills about how to learn;
- current curriculum-related knowledge and skills; and
- the nature of the educational environment that supports learning.

Teaching based upon psychological constructivist principles of learning

In most respects, constructivist perspectives on learning are neither all that new nor all that radical. However, the implications for teaching of the constructivist view of learning have been more problematic. Some educators have interpreted a psychological constructivist approach to teaching as necessitating a reliance on a 'pure' discovery procedure in which students assume a major responsibility for directing their learning. Mayer (2004) argues strongly that not only is such an interpretation misguided, but that it results in inferior outcomes for students compared to teaching approaches, where teachers retain major responsibility for guiding learning. Mayer proposes that:

there is increasing evidence that effective methods for promoting constructivist learning involve cognitive activity

rather than behavioral activity, instructional guidance rather than pure discovery, and curricular focus rather than unstructured exploration (2004:14).

What seems to be lacking is evidence about the widespread application of teaching approaches that are compatible with soundly based constructivist perspectives on learning. If such application was widespread, then many of the points of criticism made of educational practices in Aboriginal schools in research—such as that of Groome (1995), Harris (1990) and Malin and CRCATH (2003)—would not have been needed. Some of those criticisms suggest that some schooling practice has not been based on a sensitive analysis of Indigenous students' life situations. For example, pedagogical approaches that begin with the idea that Indigenous students are somehow 'deficient' typically result in ignoring or devaluing the strengths and prior knowledge that Indigenous students bring to the learning experience. This is poor quality teaching.

All students have idiosyncratic subject-matter knowledge and world-views that will affect how they interpret new information. If information is presented in a way that does not consider Indigenous people's world-views, it is likely to be poorly integrated into their mental models about health and wellbeing. One example of this is the application of Western scientific paradigms to health and disease, while ignoring a holistic concept of health as wellbeing at all levels of land, spirituality, community and individuals (Slee & Shute 2003). Many more specific examples of missing or shattered links between prior knowledge and new knowledge are provided by Trudgen's (2003) accounts of the health-related education for Yolhu people. To rebuild those links, Trudgen suggests employing the basic principles of a constructivist approach to teaching, such as using the Yolhu people's existing knowledge about the life-cycle of turtles to scaffold the acquisition of new knowledge about the life-cycle of skin parasites.

Related to this, Hughes and More (1997) argue that differing cultural backgrounds provide differing learning experiences that may lead students to develop, and to prefer, certain learning styles or approaches over others. The learning style debate rages in contemporary literature, with proponents for and against the idea that people have different ways of processing information and different preferences for accessing information. A recent study by Mayer and Massa (2003) suggests that while some claims about differing learning styles lack supporting evidence, some research does suggest individual differences in cognitive styles and learning

preferences along a visual to verbal dimension. It is the task of all teachers to: (1) enable students to develop a range of learning styles and strategies that can be flexibly employed to suit varying tasks over varying contexts; and (2) design and deliver instructional interventions that are responsive to the learning styles and approaches of their students (Hughes & More 1997; Mayer & Massa 2003).

There are clear implications for teacher education. Tertiary teachers must provide opportunities for prospective teachers to learn about Aboriginal culture from Aboriginal perspectives, and also to give prospective teachers opportunities to reflect on their own cultures, beliefs and attitudes and how these might impact on the education and wellbeing of Aboriginal peoples. A recent Cultural Diversity and Inclusive Practice initiative at Flinders University provides one example of progress in this area: staff of Yunggorrendi are preparing a teaching resource for teacher educators that includes strategies designed to assist the process of incorporating Indigenous perspectives into key learning areas (CDIP 2005).

Distributed knowledge

Although knowledge is relatively easy to conceptualise as residing inside an individual's head, we must also consider the existing knowledge held by groups of people: knowledge that constitutes a community's or an organisation's distributed expertise (Wenger 1998). Where community knowledge has been developed with a sense of ownership and control, and where it has been explored and elaborated in community discussions, it is likely to be well connected and useful for addressing community problems. Community groups and organisations that have impoverished or poorly connected knowledge do not have a strong foundation upon which to build new knowledge. This points once again to the importance of connectedness, represented in the need to develop strong *relationships*, such that knowledge is distributed within and between individuals and groups, thus enabling change to be carried forward, even when individual people move aside.

Such a group level knowledge structure—be it of a community, a government department or a whole system—can clearly be compromised if parts of it 'go missing'. In the case of Indigenous peoples' education and wellbeing, if politicians, government officials, teachers, health workers and so on, are transient, the expertise that might be available to any one group is constantly changing. With the promotion, transfer, retirement and so on of even one key person in

an organisation, valuable explicit and implicit knowledge may be lost. Bureaucracies have a responsibility to their citizens to ensure consistency and continuity in application of policy. Where this does not occur, the developed expertise (Sternberg 1999) that might be available may not be sufficiently sustained over time to implement change or to maintain existing programs. Distributed knowledge is also vitally important when considering the knowledge loss caused by low life expectancy in Indigenous communities and the consequent loss of Elders and their knowledge.

We see a synergy between the representation of learning and teaching outlined here and the transactional system perspective discussed earlier and displayed in Figure 1. There is a need to pursue the educational–wellbeing relationship on multiple fronts. This requires us to consider the essential locations for education related to education and wellbeing.

Sites for educational intervention

Who needs the education?

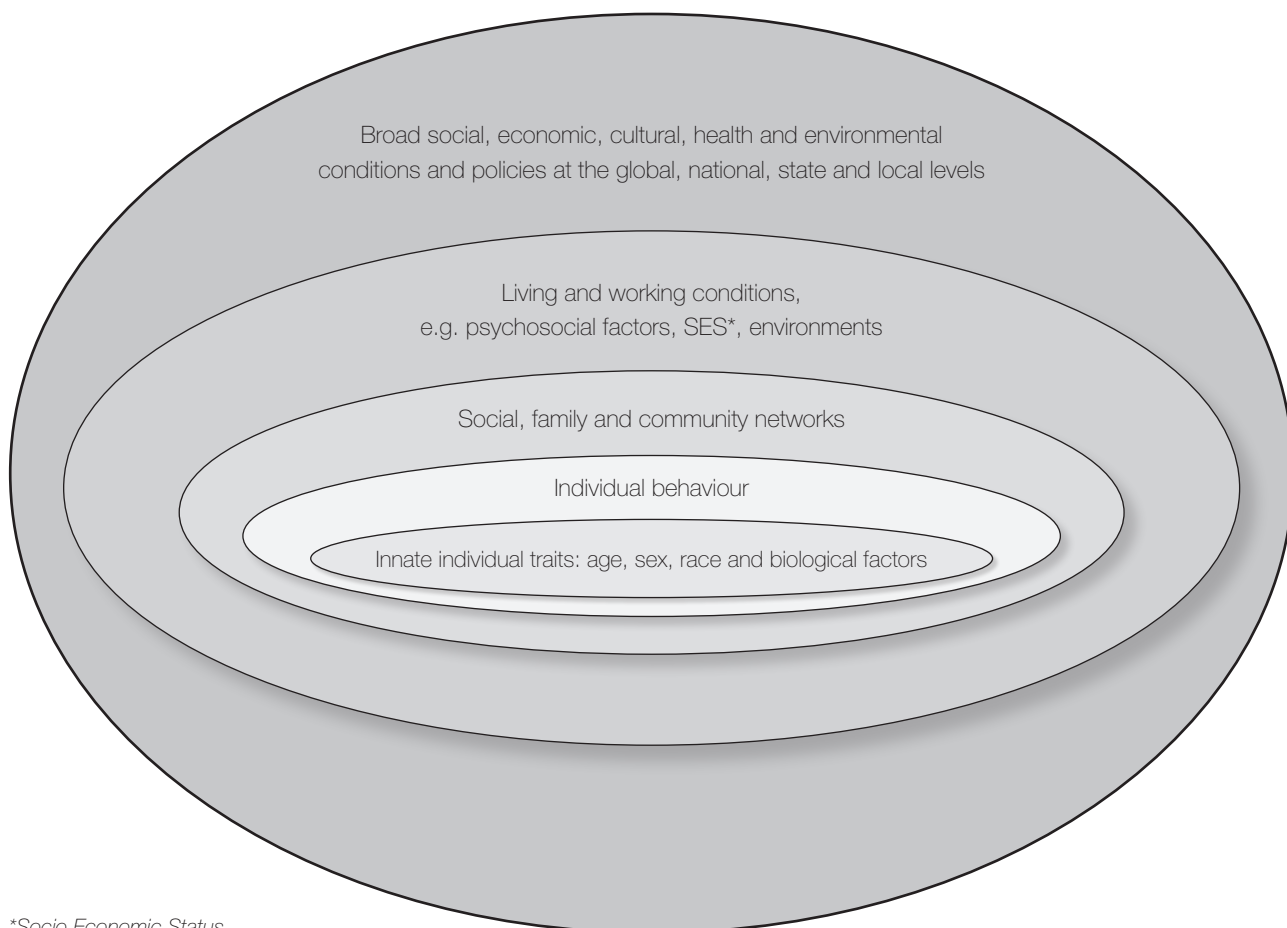
McRae and colleagues begin their treatise on what works in the education of Indigenous students with the statement that: 'Reconciliation of the Indigenous and non-Indigenous peoples of Australia is not a moment or single event. It requires a larger change in attitudes and practices' (2002:i).

Much change is required because, to paraphrase Tsey *et al.* (2003), the *educational* determinants of health are complex and multi-layered, and addressing those determinants needs multi-level thinking and action. In the multi-level representation in Figure 2, possible sites for action exist at inner, middle and outer levels. There must also be action at the interfaces between the levels: working from the inside-out and from the outside-in. As Luke (2004) argues, analysis techniques in many areas of the social sciences have tended to focus on correlations or upon a few variables in linear and/or unidirectional relationships. Such methods have not adequately dealt with effects that occur at different levels of complex systems. A more productive approach to analysis will differentiate between broad level effects, site-specific effects and individual effects. We have nominated possible sites for action in regard to the education–wellbeing relationship in the different levels included in Figure 2. Although beyond the scope of this chapter, it is also important to recognise the influence on education and wellbeing of other components of systems, such as meaningful employment opportunities and support structures.

Figure 2 illustrates that research designs and data analysis procedures must account for the multi-level nature of systems. For example, in school education, young students are nested in classrooms, which are nested in schools, which are nested in communities, which are nested in society. Techniques now exist that permit researchers to account for the effects of influences at different levels of systems. To ignore influences at different levels is poor quality research.

The representation in Figure 2 also shows that education is needed at all levels: for individuals, families, communities, bureaucrats and policy makers. The nested structure of Figure 2 further implies that there should be a high degree of coherence in education at the different levels. Approaches that lack such coherence run the risk of passing one another by, thus limiting their chances of generating any productive outcomes for the system.

FIGURE 2: Sites for action and a model for research and data analysis (adapted from Luke 2004)



*Socio Economic Status

Educational effects at the inner level

The power of the individual

Uncle Badger's story makes it clear that individuals do have an effect. In that story, Kim was brave enough to talk with her uncle and he was wise enough to learn from her. We hope that we are open and reflective enough to learn from both of them. In other situations, it might be necessary for an individual to take positive action, a message made clear in the following story by Michael Coughlan.

Michael's story reminds us that the influence of individuals, both positive and negative, is always of significance. In this case, it was his determination to move beyond the resistance of some people in the system that led him to enlist the support of a 'big gun' who had a wider vision. As was the case in *Uncle Badger's* story, this story shows that individuals who have the determination to bring about change can wield great influence. Both Michael and the chairman of the company effected change. This raises the question of what 'guns', big or small, might bring about change in education?

Bringing in the 'BIG GUNS'

As told by Michael Coughlan, a Ngarrindjeri man from the Coorong in South Australia

In 1992, I was approached by the Chairman of Normandy Mining (now Newmont Mining) to join their team and assist them with gaining access for exploration and mining purposes on tracts of land subject to the Aboriginal Lands Right Act (NT) in the Northern Territory. The land is in and around Tennant Creek.

For many years these areas of land had been 'locked up' under the Lands Right Act due to mining and exploration being vetoed earlier by the Traditional Owners. From Normandy's point of view, without access to new areas to explore and mine, their Tennant Creek operations would not be sustainable in the short to medium term.

Major hurdles for Normandy included the attitudes of Traditional Owners to mining in Tennant Creek, the attitudes and behaviours of the Central Land Council towards mining companies in general, past history of conflict between previous mining companies and their pastoral companies with local Warumungu and Walpiri peoples in Tennant Creek, local non-Indigenous treatment and attitude of Indigenous people, entrenched counter productive values of mining company workers towards Indigenous people and their plight, and other barriers to Indigenous people participating in the mining industry.

My objective for the Chairman was to overcome these barriers and gain land access. To assist, the Chairman accompanied me to Tennant Creek and introduced me to the local management team and to the key stakeholders in the community. The local management team was, clearly, highly loyal to the team leader (the Mine Manager) and the team, clearly, shared the leader's values and at the time appeared to be aligned to the ultimate leader, the Chairman.

After spending some time getting to know the underlying issues, I formed a 'coalface' point of view and subsequently was able to develop a partnership and stakeholder participation model for Tennant Creek with appropriate strategies for clearing obstacles and moving the negotiation positions forward. However, I had some obstacles and one of them was the local team leader who was making Indigenous issues a low priority, and would not lend any support when dealing with the other management team members.

This perplexed me and I started to question whether or not Normandy were serious about their objective, or were they just looking at doing some fancy window dressing. For most people who work or have worked in this field, they too always come to this point, and they either press on with faith, freeze, or flee and withdraw. I chose to press on, but with higher support. In a report to the Chairman I outlined my observations. The Chairman's actions were swift and decisive, he transferred the Mine Manager to a mine site that needed the technical skills of the Manager, and introduced a new Mine Manager who was properly briefed and prepped for the objectives at the Tennant Creek operations.

Instantly, things started making progress. The culture of the management team gradually changed and some of the players changed, the culture of the workforce changed and again so did some of the players. Local Indigenous employment at the mine soared, the attitudes of the Central Land Council changed for the positive, productivity lifted, the towns-folk followed suit and had at least on the surface changed their attitudes and behaviours toward Indigenous people. The subsequent negotiations for land access were a success, and all Normandy's applications were granted as well as other mining companies'. Unfortunately for Normandy, the land access issues were settled about one to two years short of their resources being depleted in Tennant Creek, and therefore they were forced to sell off the assets in 1997–98.

So it just goes to show that you can have all the 'best practices' models, all the latest technology on hand, but it only takes one influential or power broker in the chain to grind it to a halt. A few years after these events, I was watching the opening beach landing scenes to the movie Saving Private Ryan and my thoughts drifted to those days at Normandy, not Normandy beach, but Normandy the company, and I thought how we were like the soldiers undertaking the beach landing, dodging bullets, landmines, hand grenades and initially pinned down by enemy fire until the first bunker fell. Many of the soldiers appeared to be scared to move forward and would eventually die on the beach because of this, if it were not for the big guns pounding the bunkers, the soldiers would not have taken those bunkers on their own. I see Normandy's Chairman as my 'Big Gun'. We have too little [few] 'Big Guns' as leaders in this country, in my opinion, to deal with Indigenous issues the way they should be dealt with.

Students

The preceding description of constructivist approaches to learning assumes that students can develop a sense of agency that will drive change. In addressing this issue in research, one starting point would be to gather information on students' perspectives of their educational and health situations. To ignore the student perspective, and to deny the student voice, is to argue that they have no part in the education-wellbeing system that is designed to improve their situations. Such treatment is in conflict with the views of learning discussed earlier. The student perspective should be a key part of future research programs.

Teachers

In considering the production of change through education, we take as a fundamental principle that change can occur through teaching. Teaching is a powerful influence on educational outcomes:

When all other sources of variation are taken into account, including gender, social backgrounds of students and differences between schools, the largest differences in student achievement are between classes. That is by far the most important source of variation in student achievement is teacher quality (Rowe 2002:S1)

Teaching actions in classrooms must be seen as a major site for attention in any research on the relationship between education and wellbeing.

Research in the area of cognitive strategy training provides one source of information about how such teaching effects might occur. Hattie, Biggs and Purdie (1996) found that strategy training interventions that focused on improving academic performance were associated with improvements in student learning outcomes of about half a standard deviation. This is regarded as an effect that is of practical significance in educational research.

A corollary of the argument about the importance of the quality of teaching actions is that preparing teachers for working in classrooms with Indigenous students must also be a site for attention. Thus, the content of the teacher preparation courses, the practicum experiences of the student teachers, and the induction of newly qualified teachers should all be considered as possible sites for action, and for research. Malin and CRCATH (2003) emphasise the importance of forging strong links between each of these components.

Educational effects at the middle level

Educational environments

Educational institutions, such as schools, are based around systems, and around systems within systems: these include political, cultural, community, home, school, year-level, classroom and peer groups, to name but a few. These various systems can interact with each other in supportive and non-supportive ways (Bateson 1972; Prigogine & Stengers 1984). Wilkinson and Marmot's discussion of two of the social determinants of health, stress and social support, points to the importance of the school system: 'Institutions that give people a sense of belonging, participating and being valued are likely to be healthier places than those where people feel excluded, disregarded and used' (2003:13).

A systems perspective proposes that people are viewed in terms of their relationships with each other, rather than simply being understood principally on the basis of their individual development (Slee 2002). In applying a systems perspective to education, an analysis of student behaviour can provide important insights into the various roles and relationships within the system. For example, Malin's (1994) study with Aboriginal children in reading classes in suburban Adelaide demonstrated that both the social organisation of the academic task, and the social relationship between the teacher and the student, played a crucial role in students' learning. Non-racist, inclusive environments are essential starting points in classrooms.

Systemic thinking is sharply at odds with some Western scientific thinking, which has emphasised remediation, deficits and weaknesses in individuals. In contrast to the 'deficit' approach, the systems approach emphasises how individual action is part of a transaction, and that all parts of the transaction need to be considered when change is being planned. Systemic thinking has potential for reconceptualising the place of Aboriginal students in the dominant culture school system.

Health promoting schools

Colquhoun, Goltz and Sheehan (1997) describe a radical or collective action model, which seeks to move away from 'victim-blaming' and to engage in socio-cultural change through collective action for health:

The rationale behind this approach is that health is primarily shaped by factors outside the control of individual citizens. These structural factors produce patterns of disadvantage within society, which correlate with poor health. The political decision-making processes which influences economics, working and living environments, service provision and social relations and, in turn, health, are the focus for the interventions based on this model. Critical consciousness-raising is the educational process involved in radical/critical health education (Colquhoun, Goltz & Sheehan 1997:8).

One response to the need for radical or socially critical approaches in health is the idea of a health promoting school. The application of this concept has not always been consistent with its radical intent, yet it has at its core the notion of community engagement in visioning a healthy school community, identifying issues to be addressed and acting to achieve health-enhancing change. The model is interactive, involving curriculum, teaching and learning, the school ethos and environment, and partnerships with the wider school community to enhance health and education outcomes for students, staff and parents. The South Australian Department of Education, Training and Employment (DETE 2000) showcase Oak Valley School as an example of where the health promoting schools approach has demonstrated positive outcomes for the health and wellbeing of Indigenous students.

Educational effects at the outer level

Systemic change

A fundamental point of systems theory is that the impact of change in any one part of a complex system will be limited if there is resistance in other parts of the system. For example, a case study cited by Tsey and colleagues (2003) illustrates that although a family wellbeing empowerment program influenced the thinking of an individual participant, the participant's family circumstances blocked the potential for the participant to act in more empowered ways.

We have written about control and self at the individual level. However, control can also be influential at other levels of a system. Boughton (2000), following the writing of Freire, explains that an Indigenous person's perspective of lack of control, or lack of empowerment, may not be solely due to an individual's disposition or cultural beliefs, but can be a valid reflection of actual physical circumstances and life histories associated with the outcomes of particular policies. Clear illustrations of this at the systemic level are the government policies and practices that led to the forced removal of Indigenous children from their parents—the 'stolen generation'.

The overriding impact of the system upon the individual's wellbeing was illustrated by Marmot and colleagues' seminal Whitehall studies that identified relationships between employment status, job demand-control, stress and health (Marmot *et al.* 1999). Where poverty is not a factor, as with the civil servants at Whitehall, health remains unequally distributed according to social hierarchy, with

*rank or relative position in social hierarchy [being] one of the most important determinants of health, and that addressing this must necessarily involve addressing existing power relationships at all levels of our work (Tsey *et al.* 2003:S35).*

Similarly, Gray and colleagues (2001) propose that Western secondary education could have a disempowering effect on Indigenous Australians, causing those students who entered the system but did not achieve success to become less self-efficacious and, therefore, less likely to take health-related action on behalf of their children. Although this explanation is untested, it is compatible with contemporary literature on self-efficacy, self-regulation and locus of control (Bandura 1997; Graham 1991; Graham & Weiner 1993; Zimmerman 1989). As a component of motivation, self-efficacy acts prospectively, affecting a person's readiness for action. Where levels of self-efficacy for a task are low, persistence in the face of difficulty is also likely to be lower.

The representation in Figure 2 suggests that sites for action, and research, in education exist at all levels of the system. The nested nature of these levels also suggests that the interactions between these levels should be sites for attention in future research. A clear implication of a systemic perspective, as depicted in Figures 1 and 2, is that in future research we do not just want to understand and enhance the capabilities (the minds and hearts) of parents, teachers and students: we also want to understand and enhance the

capabilities of government ministers, of heads of departments and organisations, and of Indigenous and non-Indigenous administrators. A major step in enhancing capabilities is to discard previous conceptions that limit or impede positive action, and to adopt conceptions that lead to positive agency (Bandura 2001). This requires conceptual change.

Conceptual change

That fact that major problems continue to exist in Indigenous peoples' education and wellbeing suggests the existence of powerful and stable influences. This leads us to draw parallels with research in educational psychology, which has dealt with the powerful and stable nature of people's concepts, and the difficulty of achieving conceptual change even when certain concepts might be counter productive. We now have quite clear explications of three sources of difficulty in achieving conceptual change.

The first source is lack of knowledge, or the 'I don't know' response (Chi, Slotta & Leeuw 1994). Chi and colleagues observed that a common reaction by students, in situations where a change in conception about a phenomenon is invited, is to adopt the 'I don't know anything about that' defence. Thus, misconceptions about difficult concepts might be maintained due to lack of knowledge and lack of engagement, which makes the implementation of change that depends on such knowledge difficult to achieve. From an educational point of view, some progress might be made if suitable knowledge input was provided. It seems reasonable to consider whether simple lack of knowledge in organisations or by individuals—for example, about Indigenous peoples' perspectives on education or wellbeing—mitigates against change. The possibility that lack of knowledge might be a source of difficulty that limits progress reinforces our view that there is important research to be done in gaining detailed information about the situations and understandings of people at all levels associated with education–wellbeing systems.

A second source of difficulty related to conceptual change is where existing conceptions are long-standing, and so have considerable cognitive strength (Anderson 2000). For example, White and Gunstone (1989) point out that it is relatively easy for a teacher to promote a new belief about phenomena like gravity, electric current or natural selection. However, the development of knowledge about a new and more adequate conception of a phenomenon by students does not mean that they will abandon their existing beliefs about that same phenomenon. Different and conflicting

conceptions of the phenomenon can be maintained over long periods of instruction, and it is often difficult to bring about a situation where students abandon their older, strong but less adequate conception in favour of a more adequate one (Gauld 1986). Posner, Strike, Hewson and Gertzog (1982) point out that conceptual change is unlikely to occur unless people are dissatisfied with their existing conceptions to the point where they will accept the advantages of a new conception. For organisations or individuals to undergo conceptual change, such dissatisfaction with the old, and acceptance of the advantages of the new, needs to be manifest. There needs to be an *imperative* for change. It is unlikely that people will be dissatisfied with their non-functional perceptions if perceptions that work to shore up their own position of superiority or their economic interests are not challenged. We see Michael Coughlan's story as an example of a situation where challenging of perceptions proved to be functional.

Further research questions emerge from consideration of this second source of difficulty in stimulating conceptual change. Why do key players in the wellbeing system believe that change is difficult to achieve? What challenges could be mounted in relation to these different sets of beliefs? What would these key players find attractive about a changed, more functional situation?

The final source of difficulty associated with bringing about conceptual change is described by Chi and colleagues (1994) as a problem of misclassification of a phenomenon to the wrong ontological category, such as classifying electric current as a 'thing', a type of matter, when it is actually a process. This analysis reminds us that things might be categorised in incompatible ways by Indigenous and non-Indigenous people. For example, non-Indigenous teachers' conceptions of land, schooling or health compared to their Indigenous students' conceptions might be problematic in this way. If this was the case, the problem of misclassification needs to be identified and explained so that the implications of the differences in classification can be made explicit.

Education leading to conceptual change is required at multiple levels at multiple sites, well beyond school classrooms. There is no hierarchy in deciding which sites for action should be targeted first. Rather, the attacks on misconceptions must occur simultaneously.

Summary and conclusion

We have proposed that it is fruitful to conceptualise the relationship between Indigenous peoples' education and wellbeing as a transactional system. From this analysis, we propose that education is required to achieve both the imperative for conceptual change, and conceptual change itself, at multiple sites throughout the system and at multiple levels—inner, middle and outer. In particular, we stress that education cannot be conceptualised as simply schooling, but rather that education occurs formally, informally and incidentally, with knowledge building and conceptual change leading to well-connected knowledge structures that are powerful for generating positive actions. Robust knowledge structures need to be generated, maintained and distributed between individuals, communities and organisations.

We do not claim that the above suggestions are necessarily new. However, our purpose has been to highlight how the educational literature can assist in refocusing attention upon key aspects of the multi-level transactional system that includes Indigenous peoples' education and wellbeing.

The situation of Indigenous peoples' education and wellbeing needs to be changed. There is a reasonable basis for expecting that an improvement in educational status could impact positively on wellbeing and that, in turn, would have a positive impact on educational status. Change is required in the overall conceptualisation of the education–wellbeing relationship, change that gives due recognition to the system of relationships that surround and influence outcomes.

From an educational point of view, we suggest there is a need to make use of contemporary models of learning and teaching, both in informing practice and in directing research. Both of these suggestions for change point to the need to take action in educational practice and research at multiple levels and in multiple sites. Focusing attention just on schools or teachers or just on local communities would perpetuate the current inadequacies. The longevity of the problems in education and wellbeing suggest that new perspectives need to be investigated, one of which could be developed using recent research on conceptual change. Possible research questions derived from this and other perspectives are included in the following, final section of this paper.

Questions for consideration

We propose that there are a number of questions that emerge from our consideration of the education–wellbeing relationship for Indigenous peoples that warrant further research:

- 1) What are the knowledge structures about Indigenous peoples' education and wellbeing held by Indigenous and non-Indigenous peoples? What are the fundamental points of concurrence and difference between those knowledge structures? What is the potential power for positive action from those points of concurrence and difference?
- 2) What do key Indigenous and non-Indigenous people consider are specific components of education that transact with wellbeing in Australian Indigenous communities?
- 3) What priorities do Indigenous people attach to the education (at all levels, as in Figure 2) of Indigenous and non-Indigenous people?
- 4) What connections do Indigenous leaders see between constructivist philosophies of contemporary frameworks for schooling and Indigenous peoples' world-views and ways of education and creating knowledge?
- 5) What are the classroom processes that Indigenous children, adolescent and adult learners value that connect them to education? What do Indigenous students know about these processes and how to use them in their learning?
- 6) What factors promote and impede young Indigenous people's engagement with school?
- 7) How do representatives from the education–health network interact with and inform each other?
- 8) What components/features can be identified from successful partnerships that could provide models to facilitate the creation and maintenance of partnerships between organisations and between individual people?
- 9) What are areas of educational interventions that Indigenous communities regard as most urgent? How should these interventions be carried out?
- 10) In what ways can distributed knowledge (in organisations and communities) and the knowledge of Elders be conserved and shared?

Engaging in research that provides increased knowledge about these questions has the potential to better inform policy and practice.

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