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Some indications about Education for
Sustainability as a Way Forward for
Indigenous Learners

*The Wakka Wakka are there walking,
talking, singing in the land.*

*The Gabi, Gabi are there, walking
talking, singing in the land.*

*The Gurang Gurang are there walking,
talking, singing in the land.*

*The Dungidau are there walking,
talking, singing in the land.*

*The Booyooburra are there walking,
talking, singing in the land.*

...

*they are all there in the wind,
rain, sun bush morning and night*

Lionel Fogarty

Abstract

Indigenous learners in Australia are widely perceived to be failing in educational achievement. Yet can it be equally valid to regard schools as having failed to meet the needs and recognise the strengths of Indigenous learners. Many Indigenous learners display **attitudes of reluctance** and resistance to school and teachers, while social problems on Indigenous communities are often blamed for the children's failure to achieve. Involving children in projects broadly defined as **Education for Sustainability (EfS)** may offer a way forward for several reasons. Firstly, in regard to pedagogical practice, involvement in real-life environmentally-friendly projects may have significant **similarities to traditional pedagogy**, where a stronger connection existed between learning activities in childhood and future survival. Secondly, the hands-on, outdoor aspect of such projects may align better with the **learning strengths and preferences** of many Indigenous learners for experiential, holistic and meaningful activities. Thirdly, the **ethical and philosophical** base may be more acceptable at the values level to older community members than the standard curriculum. If children are sensitive to the underlying conviction and agreement of their elders, a lessening of resistance behaviours towards formal education may occur.

The paper will include reflections from my recent two years working with Indigenous students at Cherbourg SS. The emergence of the concept of **Place Pedagogy** will be examined as a possible meeting point for Indigenous feeling for country and contemporary ecophilosophy. The possibility of a **productive cross-fertilisation** between Western knowledge and Indigenous knowledge is suggested as an aspect of reconciliation. Incorporation of Indigenous Ecological Knowledges into a new ethic of care for the earth is seen as essential to create a sustainable future. Finally, the paper examines some implications of the findings for **future directions** in the education of Indigenous learners.

Yunkaporta (2007 p.4) notes that

A reconciling interface approach is needed to harmonise the relationship between Aboriginal and non-Aboriginal pedagogical systems.

I sought to find whether Education for Sustainability might be part of this reconciling interface, with the following research question:

Can involvement in projects broadly categorised as Education for Sustainability (EfS) help Indigenous learners remain engaged with formal education?

In order to address the research question, the following Focus Questions were used:

- What principles and pedagogy characterise EfS, what educational discourses underpin it and are these compatible with Indigenous epistemology and land-based ethics?
- What are the problems limiting Indigenous learners' achievements?
- Can EfS be effective in making programming and curriculum become more responsive to Indigenous learners and community members?

The term *Education for Sustainability* (EfS) arose during the late twentieth century in the context of widespread concern at the international level about environmental degradation which was becoming obvious in many parts of planet earth. In 1977, an Intergovernmental Conference on Environmental Education was held in Tbilisi, Georgia, to develop strategies to handle the impending ecological crisis. A reading of Point 11 of the Conference Report pre-figures some challenges to established teaching practices which is still highly relevant today and suggests its potential in challenging the *status quo*.

By its interdisciplinary nature, as well as by bringing education nearer to the environment and to life, environmental education can play a considerable role in the renovation of educational systems (UNESCO 1978 p. 12).

The principles of Education for Sustainability suggest particular pedagogical approaches.

We will not be able to strengthen the contribution of Environmental Education to sustainability in the school education sector solely through the integration of sustainability content into the curriculum. It will require a fundamental shift in current practice. (Tilbury et al 2005 p. 1)

Shifts in practice have been a long time coming in many Australian schools in relation to both Education for Sustainability and improvements in outcomes for Indigenous students. The same underlying discourses may be impeding both. The pedagogical requirements of genuine EfS maybe difficult to implement in mainstream schools because of ideological contradictions which stem from the persistence of colonising ideologies which privilege the assumptions of Western Science (Ferreira, Ryan and Tilbury 2006). Conversely a number of compatibilities emerge which suggest that the genuine application of Education for Sustainability may address many of the learning preferences and interests of Indigenous learners.

Ethical Issues and Protocols

Before I could begin the research project I had to gain the approval of the local Cherbourg Council. I went along to the meeting with a PowerPoint prepared and ready for tough questions. However the councilors present were sympathetically disposed towards the project, displaying an immediate grasp of the compatibility of the Education for Sustainability approach and traditional ecological values.

I sought to extend opportunities to have a voice in this research “story” to as many Indigenous participants as possible in the South Burnett, and elsewhere. Non-Indigenous informants, mostly experienced educators held in high regard by Indigenous sources, also contributed. Interviews were conducted with educators, Indigenous support staff from local schools, community elders, Council members, health workers and other providers of outdoor or environmental education programs in the region. For many interviews notes were used as people found the recording device inhibiting. I kept the tone informal and encouraged the sharing of relevant personal experiences and anecdotes. Three open meetings were held for people from Cherbourg community to have input. As the project proceeded, I became increasingly interested in establishing the philosophical base which would generate genuine community endorsement for the use of EfS in engaging Cherbourg’s learners.

Negotiating the Cultural Interface

Nakata (2002) describes *the cultural interface*, which even now makes every venture outside the community for Indigenous people a careful negotiation of complex and sometimes conflicting expectations.

Today, Indigenous people operate at the interface of two different cultures that have different histories and worldviews.

However Nakata (p. 25) points out that neither of these “cultures” are static entities, but are moving and evolving in relation to each other and other forces. Langton (1993 p. 33) describes intercultural dialogue as

..a field of inter-subjectivity in that it is remade over and over again in a process of dialogue, of imagination, of representation and interpretation.

I quickly found that entering an Aboriginal community there is a fair bit of culture shock and I had to walk my own interface.

What happened?

During 2007 I volunteered to work at Cherbourg Primary School as a class teacher. It was during two years, 2008 and 2009, while teaching at Cherbourg in Wakka Wakka country that this research took shape. As well as respecting Indigenist protocols, I was aware that research paradigms have implications for how research is undertaken. Initially I thought my research would have a more ethnographic character, as by living nearby and interacting every day with students I expected to be somewhat “immersed” in the local community. The reality of the situation however, is that very limited mechanisms exist for teachers to meet and interact with families and community members apart from school pupils during school hours. Elders meetings were held in the school library (IKC), but during hours when teachers were with their classes. Due to historical injustices and an attitude of justifiable suspicion of Western education, formal education may be perceived as the evangelical arm of an oppressive regime, or as expressed by Nakata (2007 p. 159) “a colonial institution that was mono-cultural, assimilatory and incongruent to (Indigenous) culture, ways of knowing and values”. In understanding power relations, it became obvious that in a setting like Cherbourg, there are very real and constraining

social and political structures which limit the potential for social change, and that without strong and explicit community endorsement, learners will always display high levels of resistance. Yunkaporta (2008 np.) characterizes an educator's work in an Indigenous school in NSW, (also a place with a history of forced relocation of diverse groups), as "seeking how to operate at the interface between Western Curriculum and Indigenous knowledge". Linda Tuhiwai Smith describes such research as insider/outsider research, where the researcher acknowledges differentness, but does not try to assume the role of an outsider who can observe objectively.

Indigenous research approaches problematise the insider model in different ways because there are multiple ways of both being an insider and an outside in Indigenous contexts (Tuhiwai Smith 1999 p. 137).

I was very fortunate from the outset to have the friendship and support of Auntie Alzira, a Cherbourg elder employed at the Community Health Centre, who had previously worked at Cherbourg School. Auntie Alzira guided me with suggestions about who to speak to about various issues and displayed a deep understanding of the project. She was also instrumental in introducing me to other informants.

Because I wanted a deeper and more general understanding of the community and its attitudes and aspirations, I took up any opportunities to meet parents and elders. On some occasions, I was able to have discussions with people when working on other projects. Among the most receptive were the staff at local radio station US MOB 94.1 FM. Announcers "Pop H" and "Auntie Chris" interviewed me on air before major events such as Focus group meetings to get the word out. Pop H. also attended two discussion groups and brought a friend along. At one meeting I was questioned by a participant who asked whether I was an Indigenous person, suggesting that an Indigenous person ought to be carrying out the research. Pop H. smoothly intervened, saying, "We've adopted her". By the end of my two years at Cherbourg some parents and elders would come up to me and greet me by name. They also began to share with me genuine concerns and information instead of agreeing with whatever I said. These events gave me some hope that I had begun in some degree to successfully negotiate this interface.

Indigenous Learners and Education for Sustainability

Tilbury (1995 p. 199) argues that Environmental Education for Sustainability must respect the principles of *relevance* and *holism*. Pedagogical approaches consistent with its principles include operating within an ethical and values-based framework, using issue-based learning, having an activist orientation and envisioning a better future. Critical thinking and reflection, which enables learners to question current belief systems and to recognize the assumptions underlying knowledge, perspective and opinions is seen as important. Systemic thinking which acknowledges complexities and looks for links and synergies when trying to find solutions to problems is also advocated. Building partnerships which promote dialogue and negotiation are advocated along with participation in decision-making which results in empowering local communities. These are discussed below in connection with aspects of their compatibility with Indigenous learning preferences, culture and philosophy.

Relevance

In traditional pedagogies investigated by Harris (1990) and Hart (1981), the purpose of learning certain information or mastering skills was immediately connected to real-life tasks. Hughes and More (1997) developed four bipolar continua which describe preferred learning experiences. At one polarity, the **Global learner** understands the task best when the overall concept is presented first, through an overview, introduction or finished example, while opposite *analytic* end, is the comfort zone for learners who prefer information presented in small pieces and gradually built up to the whole (Hughes & More 2004 p. 29). Research by Harris (1984) and Hughes, More & Williams (2004) suggest that Indigenous learners are more likely to cluster towards the global end of the spectrum. They want to understand the purpose for a task or skill acquisition from the outset.

My experience with the Cherbourg community suggests that if EfS projects are implemented which address perceived local issues, discontinuity with schooling could be reduced. For instance, community elders predicted problems over a decade previously when a large water storage (Bjelke-Peterson Dam) was constructed which blocked off fresh water flows into Barambah Creek. BPD hasn't been over 6% while I've been at Cherbourg so it never overflows, leading to water quality issues including blue-green algae in the creek where local kids love to swim. Practical hands-on projects to address water quality issues were suggested to me on a number of occasions and would have strong community support. In simple examples like learning the genre of letter-writing, when a pen-pal exchange with children from my previous school was set up, resistance to learning the correct way to set out letters disappeared. A certain attitude of "economy of effort" seemed to be evident, which might be articulated as "Why waste effort on rehearsal? Save it for the main event!"

Holism

The Western approach to knowledge, separated into component parts and assigned to different disciplines, in contrast to holistic traditional modes of knowing. Christie (1991 p. 26) after working with traditional elders from remote Milingimbi in Arnhem Land came to the conclusion that the conceptualization of humans as separate from the natural environment is a core characteristic distinguishing Euro-Western from Indigenous scientific traditions.

Aboriginal Science is a mode of knowledge production which has evolved to allow humans beings to fit into, rather than outside of, the ecology. It is a science in which all human dimensions, social, economic, religious and political, are integrated and interpreted within, and in terms of, the rest of the physical universe.

In employing a holistic and interdisciplinary perspective to overcoming false dichotomies, to approach an Indigenous sensibility to knowledge, the belief that spiritual content is incompatible with mainstream "knowledge" must be interrogated. Indigenous knowledge systems from other parts of the world express similar outlooks. African/native American team of Indigenous educators, Waterfall and Wane declare that

We have come to understand that we have a moral and an ethical responsibility to create an educational space that encourages the connection of mind, body, emotion and spirit. As such, our pedagogical practices rupture the dominant Euro-Western academic paradigm, which attends only to the mind or intellect (Waterfall & Wane p. 59).

Dudgeon (2008 p. 13) notes that Indigenous scholars often travel across disciplines critically appraising and gathering information, because

We cannot address issues to do with Indigenous education without considering other related factors such as health, housing, the justice system, government policy and importantly, culture and the history of colonisation and racism.

Ethical and values-based

Tilbury et al (2005) report that dealing with controversial issues in a balanced and sensitive manner is one of the greatest challenges for teachers. Values clarification is an approach that encourages students to analyse their own thoughts and feeling about an environmental issue. Students can be encouraged and enabled to explore concepts of spirituality and sacredness of place and the stewardship of finite resources. Jickling (2005 p. 41) notes the challenge posed by the Yukon First Nations to the dominant culture's framework for organizing knowledge: the separation of ethical, emotional and spiritual knowledge from "hard" science. The Western approach to knowledge, separated into component parts and assigned to different disciplines, is in contrast to traditional modes of knowing in which the ethical dimension is given its due emphasis.

Issue-based learning

Issue-based learning uses real-life local issues as a vehicle to interest students in mastering skills necessary for solving the problem. This suggests compatibility with another of Hughes et al's (2004) polarities, the *concrete vs abstract*, Indigenous students in the main preferred to learn with actual examples presented first, followed by the concept or principle. They appreciate having materials they can touch, see, hear and /or smell. Many Indigenous learners work at the concrete end of the spectrum and like to use reference materials directly related to the senses (Hughes & More 2004 p. 29).

Envisioning, or being able to imagine a better future. The premise is that if we know where we want to go, we will be better able to work out how to get there. Western ecologists (Orr1991, Devall 1998, Jickling 2001) , have eloquently rejected the mechanistic, reductionist worldview which led to "the mutilation of the world around us and of other people". Robottom and Hart(1993) endorse Skolimowski's (1981) term *ecophilosophy* for what they see as an "emerging" worldview which sees humans as part of nature rather than separate from it. This concept is far from "emerging" in Indigenous viewpoints: indeed, it is central to it. If *ecophilosophy* is "a fundamental re-orientation of perception where the natural world becomes vested with the same value as the human world, and this leads to notions of stewardship" then ultimately my "research" may be described a series of ecophilosophical conversations, many with a pedagogical slant. As I stood at the bottom of her steps one day trying to explain what I was there for, a Wakka Wakka traditional owner's wife spontaneously declared, "If white people had listened to Aborigines two hundred years ago, we wouldn't be in this mess we're in now!"

Critical thinking and reflection involves learning to question our current belief systems and to recognize the assumptions underlying our knowledge, perspective and opinions and cultural structures in the context of sustainable development. The expectation that Indigenous learners should find the standard curriculum of Education Queensland satisfactory denies the culturally-relative position that members of various cultures do

experience the world differently. For example, Indigenous learners often display a dislike of formal settings and being addressed as a group. Incidental delivery of information at the learner's instigation was the preferred way to interact (Roper 2009).

Systemic thinking –

This big-picture thinking acknowledges complexities and searches for links and synergies when trying to find solutions to problems. In order to act responsibly, humans and others must be constantly alert to the state of the systems of which they are a part. Awareness is achieved by learning a huge body of facts concerning types and behaviour of living things, ways of interpreting behaviour, basic sets of messages, geography and Dreaming Law and places, and by continually observing and assessing what is happening (Rose 2002). Marker (2006) points out that

Aboriginal pedagogies are intensely ecological and place-based, being drawn from the living landscape within a framework of profound ancestral and personal relationships with place.

Building partnerships

Tilbury et al (2005) describe this as promoting dialogue and negotiation and learning to work together. One of the huge and overarching themes to emerge in interviews and discussions which formed this project is the importance of *relationships* in working with Indigenous learners. The importance of the quality of the relationship between learners and instructors has emerged as an important determinant of whether educators can succeed with Indigenous learners (Folds 1987, Harris 1980, 1988, Nicholls & Robinson 1999, Muns 1998, Hughes & More 1997, 2004). Nichols et al (1999 p. 11) describes Indigenous young people as *person-oriented* learners.

Students who feel personal connection with the teacher will be more co-operative, interested in learning, willing to take risks and attempt new tasks.

Two respondents who went as teachers to remote areas of NT commented on aspects of intercultural relationships;

Aboriginal people are above all else are very interpersonal people. They build their lives around close relationships. In contrast, white people are taught to be very self-sufficient and manage on our own ... so in my opinion, we have a very poor basis for cross-cultural education in Australia. (Morris 2009)

When I arrived they first took the note of my kid, because he's a really open, out-there kid. They worked out who would be the best people to look after him, and they put me in a relationship from that. So his auntie became my sister and they welcomed us into their family and put us in their kinship systems. (Bat 2009)

Participation in decision-making

Tilbury, Coleman and Garlick (2005) note that there is a need to move toward a participatory approach based on equity, sharing, listening, reflection, collaboration, trust, futures-orientation and democracy. This connects with the issue of empowerment for Indigenous communities. Graham and Peacock (2006) list consensus decision making, non-competitiveness, positive group dynamics, age and gender recognition and respect, maintenance of harmonious relations and non-hierarchical structures among the qualities which underpin Aboriginal social praxis.

A significant aspect of participation is evident in solidarity & non-competitiveness which many Indigenous students display in the classroom. Historically, the group is more important than the individual. Hughes et al (p. 231) point out that

Group solidarity has always been important to Aborigines. When an Aboriginal person learns, it is for the good of the whole group.

Unfortunately, trying to get the children to compete is almost mandated by the school system! In contradiction to the expectations placed on them by Education departments, teachers interviewed in the course of this research reported that not only is it difficult to get reliable independent work samples, but that they must sometimes accept, at least for a time, that each and every child does not feel obliged to master every skill. With the reasonable expectation of having other colleagues with whom to work as a team, the children seem to informally take on areas of capability. Cronin, Sarra & Yelland (2003) report on the difficulty of obtaining independent work samples at Cherbourg school, due to the strong ethic of group work and sharing answers:

The issue of testing is difficult for many reasons but mainly because sharing is a part of the children's culture. One teacher explained that the school community does not want children to lose any sense of community in their participation in the individual tests. It is important however, that the students at Cherbourg are able to perform on such tests, and that they realise that taking the test is important (Cronin et al. p.3).

Roper (resp. 59) a Greencorps instructor at Cherbourg, mentioned one teenager, substantially ahead of his cohort, who took 3 weeks off during his course and returned near the end to complete the theory component. Wise (resp. 20) working with adult *Yolngu* learners reported similar examples of Ranger teams being willing to accept that not every person needed to master every skill, provided as a whole group they could manage. TAFE educator Janet Milliken recounts that her Indigenous students all like to come out with a similar result.

They don't like tall poppies, and the more able ones avoid rushing ahead of the rest. They prefer to go at the same pace, and to help each other. ... Working together and looking after each other is a traditional survival skill, even when it comes to basic things like [in the past] catching and sharing food to eat (Milliken 2005 p. 3).

Resistance as the emancipatory imperative

Resistance refers to the many challenging and oppositional behaviours by which students at times refuse and disrupt lessons. Keefe (1988 p. 72) noted that Aboriginal children use a range of strategies to resist the influence of teachers, including “cheeky behaviour” sullen withdrawal and absenteeism.

Especially in the early months I worked at the school, I experienced a constant and extreme range of oppositional behaviour including screaming, whistling and rattling tidy trays during instructional time while I was speaking, swearing and personal put-downs to me and other students, widespread task refusal and destruction of books and worksheets, destruction of classroom resources, leaving the room without permission, opening the door to admit highly disruptive students who were truanting from other classes (resulting in whole-room chaos) and stealing of money.

Indigenous thinkers including Rigney (1999, 2001) and Ford (2001) point out that resistance has been essential for Indigenous people in the preservation of their identity

and heritage. They have begun to reframe the issue of resistance in terms of cultural survival. Ford (2005) states:

I am concerned to engage with and resist these assimilative forces through our own Tyikim knowledge systems (Ford 2001 p.1) doctoral thesis.

Resistance which stems from these roots will not be reduced without the demonstration of genuine ethical compatibility between Indigenous values and those advocated and practiced by educational institutions.

To unravel what aspects of resistance may be justifiable or necessary responses to racist legacies and which are self-destructive products of the “milieu of hostility” described by Hayes (2001) would be a topic for another day. Both may exist in varying proportions in the behaviour of any students on any given day. Bernard (2006 p. 34) quotes some beliefs of children and adolescents associated with under-achievement, poor motivation and emotional vulnerability.

1. Everything will turn out OK whether I work or not
2. Everything should always be entertaining or enjoyable with no unpleasantness whatsoever
3. **To do well in school would be to betray the friendships I have with my friends.**
4. **It is demeaning, dishonourable and destructive of my personal integrity to cooperate with authority in any way.**
5. Nothing I do in school will ever benefit me.

Teachers at Cherbourg attest to evidence of all these beliefs in their classes, but I particularly want to note beliefs 3 and 4 which can be a kind of “downside” to the solidarity behaviour I described earlier. I suggest these stem from attitudes of cultural survival discussed above. When I arrived at Cherbourg, I was given advice about behaviour management which suggested that rather than criticise a student’s actions, you find a student modelling the right behaviour and say something like, “Oh, look how well Ralphina is sitting up!” Luckily I noticed fairly quickly how many times the model child would come in for a pummelling, and I started to ignore this advice. In fact, after a few months I’d figured out that the kindest thing I could do for the Ralphinas of the class would be to “get up them” seriously at least once a day.

Howard Gardner (1983) postulated the idea of 7 broad areas of intelligence which humans may display. The first two, *linguistic* and *mathematical* intelligences, have been typically valued in schools; the next three, *musical*, *bodily-kinaesthetic* and *spatial*, are usually associated with the arts; and the final two are what Gardner called ‘personal intelligences’ (1999 p. 41-43). The current mainstream educational regime in Australia privileges the mathematical and linguistic intelligences under the terminology of literacy and numeracy. Subjects including music, art and sport are given less curriculum time and academic weighting. In state primary and secondary schools, a student’s right to participate in sport, music, art and drama is at times made dependent upon achievement in mathematics and linguistic fields. This bias helps to compose the picture of the Indigenous learner as “under-achieving”. Anecdotal comments by teachers confirm that many of the children at Cherbourg showed strong directional ability, correlating to Howard Gardner’s spatial intelligence.

However my experience *does* support the contention that significant gaps do exist in the highly-visible areas of language and mathematics. The period of Chris Sarra's principalship of Cherbourg SS (1998-2005) is often hailed as a turning point in the fortunes of the school, with improvements in educational outcomes and school attendance and staff morale. However in his statement to the 2020 summit, Dr Sarra notes, "While there has been some improvement over recent times, we are still left with the sad statistics on our efforts to deliver quality Indigenous education outcomes."

Place Pedagogy:

Aboriginal Australia's perspective on the nature of existence is that the Sacred Dreaming is the system of creation that brings the whole of existence into being and ensures its continuance. The Dreaming, with the Ancestral Beings as intermediaries, brings into being Place, and, along with the emergence of Place, comes the Law for that Place (Graham & Peacock 2006).

Marker (2001 p. 491) contrasts this with schools' increasing emphasis on educating for "global citizenship" and participation in a postindustrial, rootless workforce.

Indigenous People are now emerging in positions and roles that enable them to articulate challenges to master narratives about themselves and their people. Among Indigenous scholars to write about environmental sustainability is Nakata (2007 p. 183). He writes:

The renewed interest in our knowledge systems and practices is widespread and global. The global discourse on Indigenous knowledge is overwhelmingly driven by research into sustainable development practices in developing countries and the scientific community's concern about loss of biodiversity of species and ecosystems and the future implications of that for the whole planet.

A teacher of a group of Cherbourg boys classified as "at risk of disengagement from school" recounts this story

Whilst cray fishing I instructed the students, "We can keep the larger crays but we will be throwing the smaller ones back so they can grow bigger for another day". This was met with a hostile and aggressive response from students. Their comments only ceased when a community member who co-runs this component of my program (and jointly suggested the practice) stated, "This is the Aboriginal way as it means that next time your family was here, they (crays) will also be". On that day the students threw back the small crays out of respect for the community member whilst on subsequent times the students have thrown them back voluntarily (Leach 2009).

Discussion

The literature suggests that both the holistic pedagogy and experiential content of EfS would be a good match with the learning preferences of Indigenous learners, and could encourage the development of an intense affective bond with their country for younger learners, similar to the deep connection to country well documented in historical records. In recounting the forced relocation of many Aboriginal people from Western Queensland, Copland et al (2006 p. 81) quote the heart-rending statements from many elderly people who pleaded to be allowed to stay and die on their "dear *tauri*" (home lands) rather than be relocated to Cherbourg.

To qualify for inclusion as Education for Sustainability, the experiences for learners had to meet at least one of these criteria:

- Involve hands-on practical work by students in any environmentally-friendly activity and be connected to subjects in the curriculum?

Outdoor projects might include crushing cans for recycling, taking water quality samples, propagating native species or planting forest plots.

- Provide skills and knowledge which have some relevance to the student's future interests or livelihood?

Self-sufficiency skills in gardening, worm-farming, caring for animals would come into this category, as would trips to country learning to find one's way, camp, hunt or gather traditional food and medicine plants.

- Have an activist or social message component?

Examples might be raising funds for endangered species, conducting campaigns to spread healthy eating messages & changing canteen menus, reducing water and power usage.

Projects identified around the South Burnett fell into two broad categories

1. Projects focussed around self-sufficiency projects including vegetable gardening and supply of fresh food. In many cases these projects were connected with improved nutrition and initiatives to reduce identified local health risks such as diabetes.
2. Projects concerned with passing on Indigenous Ecological Knowledge (IEK). These are designed to help young people recognise and locate plants traditionally used for food or medicine, make rope and build huts, allow development of skills in hunting and fishing.

Some projects identified specifically targeted young people who are already perceived as having disengaged from formal educational processes. The use of EfS experiences for obviously disturbed children suggests a commonly-held "common sense" view or gut feeling that such experiences are therapeutic, healing and necessary. Healing aspects of disturbed people being reunited with country were recounted by several informants. My principal said it was "obvious". However such experiences are commonly not being provided for learners who are not displaying extreme forms of resistance to the system. Elders fear this may lead to loss of heritage and identity, and encourage children to subscribe ever more towards Western individualistic models of learning and success. Grunewald (2003) offers that contention that EfS is lacking in critical theory, and certainly many attempts seem to be operating from an overwhelmingly positivist framework, where underlying assimilationist discourse are not interrogated, or even recognized. Grunewald places EfS strongly into the social justice framework originally envisaged by Tilbury (1995) .

Ecological educators and critical pedagogues must build an educational framework that interrogates the intersection between urbanisation, racism, classism, sexism, environmentalism, global economics and other political themes. (Grunewald 2003 p. 6)

Hayes (resp 23) undertook research at Cherbourg during 1999 - 2001 working with expectant mothers. 92% of her participants told her that they drank to inebriation during their pregnancy. This may have impacted on many of the children at school today. Education of Sustainability can take many forms in practice as it addresses the unique

environmental and cultural possibilities of each school setting. The microcosm of a sustainable village model seems particularly suitable for schools with a significant proportion of Foetal Alcohol Effects and Foetal Alcohol Syndrome students. Hayes sees EfS as meeting the needs of FAE students in the following ways:

- Need for affective engagement (caring for animals etc)
- Healing experience with growing plants, and natural cycles,
- practical training in self-care and understanding needs of dependent others.

She also supports the provision of opportunities to engage in learning about local special places, bush tucker and medicinal plants, and all other aspects of traditional ecological knowledge. partly to help create a positive self-image as an Indigenous person and also as a first step in finding worthwhile and productive ways to spend time, as the risk of an alcohol-affected child becoming as alcoholic is much greater than that of the rest of the population (2001 p. 3) .Many Indigenous children whose lives have been marked by major traumas may benefit from the healing aspects of being in nature (Atkinson 2002 p. 262). Atkinson argues that “safe and healthy places” in nature need to be established as a matter of priority where adults can deal with their pain. She makes the connection between traumatised people and the violent practices against the earth and natural systems. The choice not to heal “has the possibility of destroying the planet and its diverse human and non-human inhabitants.” (Atkinson 2002 p. 263)

Some informants expressed concern that such as education would represent a return to the “old days” where Indigenous people were only expected to attain sufficient academic skills to care for animals, garden, cook and clean. However experiences and discussions suggest that where there is a more positive atmosphere of agreement on shared ethical values, resistance behaviours are reduced and all students can concentrate better and achieve closer to their potential. Dispelling the myth that Indigenous students can only work at a simpler level, and that high standards of intellectual endeavour do not exist among Indigenous people will allow the flowering of learning that is interdisciplinary, relevant, has practical application in the life world and fits within ethical frameworks consistent with Indigenous values and epistemology. Rigney (2001 p. 4) calls on educators to refuse the colonialist mentality which denies the existence of thinkers “as great as Plato, Einstein and Marx” among Indigenous communities both pre and post colonisation. Yunkaporta (2007) in his work in New South Wales found that Indigenous students were not demanding a dumbing down of curriculum or lowering of the bar, but an authentic re-framing of knowledge within an appropriate ethical and cultural framework.

Exactly how the Key Learning Areas mandated by the mainstream education system can be addressed with Education for Sustainability projects which are relevant, environmentally friendly and generate authentic community support is beyond the scope of this paper, but is a fruitful direction for future research. Perhaps one of the reasons why this apparently productive area of enquiry has not been more widely pursued may be the lack of educators with the right combination of skills. Current research indicates that many Indigenous learners still do not find the tasks of the traditional classroom meaningful or relevant (Mellor and Corrigan 2005, Nichols 2008). Possible reasons for this include limited Indigenous cultural training for beginning teachers (Partington 2002) Deakin University’s 2005 Submission to the House of Representatives

Inquiry into Teacher Education found that

.. Indigenous studies are not systematically taught within the majority of Australian teacher education courses. In 2001 the Australian College of Education found that only 13.7% of teachers have been trained in Indigenous studies.

Similarly, Ferreira et al (2006) claim that many teachers do not have the skills to manage the practicalities of dealing with sustainability at all levels of management. The pedagogical challenges were also significant.

Teachers in Australian schools tend to be inadequately prepared for the challenges of participatory pedagogy, interdisciplinarity, action learning and critical thinking that re commensurate with whole-school approaches (Ferreira et al 2006 p. 17).

The intimate knowledge of one's home-place, the capacity for attunement to what the natural world is "saying" is a kind of literacy that each child must learn to experience in his/her own setting. In these times of compulsory schooling starting earlier and lasting longer, schools must accept some responsibility for helping students acquire this kind of local knowledge and connection with place. Tragically, in spending longer mandated periods in "conventional" schooling we may actually take children away from contact with the outdoors where these lessons must be learnt. A strong advocate for "measurable" educational improvements during his years as Principal of Cherbourg SS, Sarra (2003 p. 7) argues that this need not be the case:

(Parents) want to know whether their kids can make it in Grade 8, and is he or she going to survive.... But again, the subclause is that it's not at the expense of their cultural identity. We're not out to make them like non-Aboriginal kids, we're just focusing on academic outcomes).

For many Indigenous children, where the knowledge to be learned from their elders is still extensive, it is essential to allow time to travel in country and experience first-hand the changes in seasons and how to sustainably manage the seasonal abundances on which life depends, to meet relatives and understand the connections that bind them. This is another compelling reason to explore the diverse instructional models which EfS principles suggest, including time *in* nature, gaining holistic knowledge validated by the heart as well as the head. The pedagogical strategies which will create within each child an enduring, authentic treasury/reservoir of understanding and will have to include a rich tapestry of a multi-sensory, kinaesthetic, emotionally satisfying experiences.

Torres Strait academic Nakata (2004) raises a key point about the possible need to relinquish some traditional knowledge in order to succeed in the modern education machine:

The organising principle of this schema is our 'difference' - interpreted as cultural and linguistic difference. This interpretation gives rise to a tension between upholding and maintaining cultural difference and identity on the one hand, and producing equal outcomes on the other.

Education for Sustainability, in its best-practice form compatible with ecophilosophy, offers hope that a model may be found where this inestimable sacrifice will not have to occur. It follows that an approach which shares a solid philosophical and ethical basis with traditional thinking will be better endorsed by community elders, eliminating some of the contradictory aspects which produce alienation and resistance. In the course of this research, I have been privileged to hear about, read about and meet some of the great both-ways people who are creating a new *intersubjective* or both-ways dialogue.

Yunkaporta (2007) has suggested possibility of a productive cross-fertilisation between Western knowledge and Indigenous knowledge particularly in relation to knowledge of place. He suggests that a shared future vision for Australia must contain something of the richness, complexity and beauty of Indigenous culture which still exists in this country.

Empowerment of Local Communities

Partington (2002 p. 15) suggests that

It is more likely that small projects, utilizing the constructs of the cube models, will make a difference in a variety of circumstances. Perhaps, rather than starting on a grand scale, the interagency/ intersectoral collaboration identified as the solution to the ills of Indigenous education (Ministerial Council on Education Employment Training and Youth Affairs, 2000) will become a reality from the bottom up, rather than from the top down. The structure of this approach needs to be explored by those involved in Indigenous education.

This relates strongly to the idea that each case is unique and is consistent with the place-specific models of EfS. Folds (1987) notes that attention to learning preferences may provide *part* of the solution to Indigenous under-achievement but must be implemented in the context of **effective community control**, which he regards as the only real means to defuse the resistance behaviours which cripple education in settlement schools he surveyed. Success of educational programs in Cherbourg is related to the perception of support, or endorsement, from the local community beyond the school or institution. In the light of its demonstrated shared values with Indigenous knowledge systems, Education for Sustainability may be an effective vehicle for creating a pedagogy which “lines up” the keyholes of cultural lenses in order to furnish a mutual (intersubjective) view of the educational process, emphasising holism, meaning and ethical concerns. This goal will be best advanced if Education for Sustainability can demonstrate a compelling compatibility with the enduring sustainable paradigm of Indigenous culture, and find unique forms for expressing this in particular educational settings.

References

Atkinson, J. (2002) *Trauma Trails: Recreating the Song Lines*. Melbourne: Spinifex Press.

Blake, T. (2001) *A Dumping Ground: A History of the Cherbourg Settlement*. Brisbane: University of Queensland Press.

Bernard, M.E. (2006). *Providing all children with the foundations for achievement, well-being, and positive relationships*. Oakleigh, Vic: Australian Scholarships Group.

Christie, M. J. (1991) Aboriginal Science for the Ecologically Sustainable Future. *Australian Science Teachers Journal* Vol 37 No. 1 pp. 26-33.

Copland, M., Richards, J. and Walker, A. (2006) *One Hour More Daylight*. Social Justice Commission, Catholic Diocese of Toowoomba.

Cronin, R., Sarra, C. and Yelland, N. (2002) *Achieving positive outcomes in numeracy for indigenous students*. Paper presented at AARE Conference 2002.

Deakin University Institute of Koori Education (2005) *Submission to the House of Representatives Inquiry into Teacher Education*. Retrieved Nov 15 2009 from <http://www.aph.gov.au/House/committee/evt/teachereduc/subs/sub148.pdf>

Dudgeon, P. (2008) Empowering research with Indigenous communities. *Ngoonjook: A Journal of Indigenous Issues*, Vol 32, pp. 8-24, NT, Batchelor Press.

Devall, B. (1998) *Simple in Means, Rich in Ends: Practicing Deep Ecology*. Salt Lake City: Peregrine Smith Books.

Ferreira, J., Ryan, L. and Tilbury, D. (2006) *Whole-school approaches to Sustainability*. ARIES, Sydney: Macquarie University.

Folds, R. (1987) *Whitefella School*. Sydney: Allen & Unwin,.

Ford, L. (2004) *Narratives and landscapes : their capacity to serve indigenous knowledge interests*. PhD thesis Melbourne: Deakin University.

Gardner, H. (1983; 1993) *Frames of Mind: The theory of multiple intelligences*. New York: Basic Books.

Gardner, Howard (1999) *The Disciplined Mind: Beyond Facts And Standardized Tests, The K-12 Education That Every Child Deserves*, New York: Simon and Schuster.

Graham, P. and Peacock, C. (2006) *Introduction to Kummara Conceptual Framework A Discourse on a Proposed Aboriginal Research Methodology*. West End: Kummara Association Inc.

Harris, S. (1990). *Two-way Aboriginal schooling: Education and cultural survival*. Canberra: Aboriginal Studies Press.

Harris, S. (1992) *Going About it the right way- Decolonising aboriginal school curriculum processes* in B. Teasdale & J Teasdale (eds) *Voices in a seashell: Education, Culture and Identity* (pp. 37-53) Suva, Fiji: The University of the South Pacific Institute of Pacific Studies.

Hayes, L. (2001) *Children of the Grog*. Honours Thesis, Brisbane: University of Queensland.

Hughes, P., More, A. & Williams, M. (2004), *Aboriginal ways of learning*. Adelaide: University of South Australia.

Jickling, Bob. (2005). "The wolf must not be made a fool of": Reflections on education, ethics, and epistemology. In Peggy Tripp & Linda Muzzin (Eds), *Teaching as activism: Equity meets environmentalism*, (pp. 35-45). MQUP: McGill-Queens Press.

Keeffe, K. (1992) *From the Centre to the City: Aboriginal Education, Culture and Power*, Canberra: Aboriginal Studies Press.

Marker, M. (2006) *After the Whale Hunt: Indigenous Knowledge and Limits to Multicultural discourse*. *Urban Education* Vol 41 BC: Sage Publications.

Mellor, S. & Corrigan, M. (2006) *The Case for Change: A review of contemporary research on Indigenous education outcomes*, ACER.

Milliken, N. (2005) *Indigenous Students Need Whole-Picture Learning*, VET Pedagogy Project, TAFE NSW Riverina Institute.

Muns, G. (1998) "They Just Can't Hack That" *Aboriginal Students, Their Teachers and Responses to School and Classrooms*. In Partington, G. 1998 (ed.) *Perspectives on Aboriginal and Torres Strait Islander Education*. Katoomba NSW: Social Science Press.

Nakata, M. (2004) *Human rights, cultural rights and giving progressive agendas a go*. *Curriculum Leadership: An electronic journal for leaders in education* Vol.2 Issue 20, Retrieved Nov15 2008 from http://cms.curriculum.edu.au/leader/newcms/leader_articles.asp?item_id=15388

Nakata, M. (2007) *Disciplining the Savages: Savaging the Disciplines*. Canberra: Aboriginal Studies Press.

Nichols, R. & Robinson, J. (1999) *Reconciling Indigenous Pedagogy and SOSE*, *Ethos* Volume 7 No 2 pp. 7-12.

Orr, D. (1991) *What is Education For?* *Trumpeter* Vol. 3, No 8 pp. 99-102.

Partington, G. (2002) *Conceptual frameworks for Indigenous education: review and analysis*. Refereed paper presented at the National Indigenous Education Conference, Townsville, Qld.

Rigney, Lester-Irabinna (1997) Internationalisation Of An Indigenous Anti-Colonial Cultural Critique Of Research Methodologies: A Guide To Indigenist Research Methodology And Its Principles. In *the Journal for Native American Studies, WICAZO sa Review, University of Minnesota Press*, Vol 14, Number 2, Fall edition, pp.109-121.

Rigney, Lester-Irabinna (2001) *A First perspective of Indigenous Australian Participation in Science: Framing Indigenous Research Towards a Indigenous Australian Intellectual Sovereignty*. Adelaide: Kaurna Higher Education Journal.

Robottom, I. and Hart, P. (1993) *Research in Environmental Education: Engaging the Debate*. Geelong: Deakin University Press.

Sarra, C. (2008) *Statement to the 2020 Summit stream: Education, Skills and Productivity*. Retrieved April 26 from http://www.strongersmarter.qut.edu.au/docs/Dr_Chris_Sarra_2020_Summit_Statement_2008.pdf

Skolimowski, H. (1981) *Eco-Philosophy, Designing New Tactic for Living*. Boston: M. Boyars.

Tilbury, D. (1995). Environmental education for sustainability: Defining a new focus of environmental education in the 1990's. *Environmental Education Research*, 1(2), 195-212.

Tilbury, D., Coleman, V. and Garlick, D. (2005) A National Review of Environmental Education and its Contribution to Sustainability in Australia: School Education - Key Findings. Canberra: Australian Government Department of the Environment and Heritage and Australian Research Institute in Education for Sustainability (ARIES).

Tuhiwai Smith, L. (1999) *Decolonising Methodologies: Research and Indigenous People*. London: Zed Books.

United Nations Educational, Scientific, and Cultural Organization (UNESCO). (1978) *Intergovernmental Conference on Environmental Education 14-26 October 1977, Tbilisi USSR, Final Report*. Retrieved July 26 2009 from http://www.gdrc.org/uem/ee/EE-Tbilisi_1977.pdf

Yunkaporta, T. and McGinty, S. (2007) *Reclaiming Aboriginal Place-based Worldviews at the Interface of Local and Non-local Knowledge in Education*. Unpublished conference paper.

Appendix 1

Historical Overview of Cherbourg and the South Burnett

The South Burnett region contains the large aboriginal town of Cherbourg. The vicissitudes of Cherbourg and its residents have been extensively written about in first hand accounts and scholarly documents. Cherbourg, formerly known as Barambah, was a “dumping ground” for the survivors of the wars for the lands of Indigenous people of South East Queensland (Blake 2001). It was founded in 1901 as a mission under the auspices of the Salvation Army Church. This arrangement was short-lived and within a few years, control had been transferred to the Queensland government. By 1940 survivors of more than forty different Aboriginal groups were detained there. Before the end of the Aboriginal resistance in Queensland, remnants of seventy-six language groups had been forcibly relocated to Cherbourg. Initially, each group tended to camp in discrete areas (Blake p.67) and corroborees were permitted. For the Wakka Wakka people, the traditional custodians of the region, the impact was disastrous. Forced to accept many more people than their lands could support, their hunting grounds, water supply, firewood and every other resource was overtaxed. Simultaneously the extensive food forests of *bonyi bonyi*, or Bunya trees, were being destroyed by loggers, and a network of sawmills dotted the landscape. The coming of so many strangers upset family and kin systems. With available bush food heavily taxed, the unwilling residents were reduced to living on “rations” including tea, sugar, flour, rice, yellow peas, beef and golden syrup which were handed out by white managerial staff who lived on site and interfered unrelentingly with every aspect of residents’ life, work, relationships and travel. Over time, the settlement became self-sufficient in “new” foods through establishment of orchards, vegetable gardens abattoirs and a new lexicon of skills was mastered (Blake 2001). Former Cherbourg resident, Lesley Williams, has been at the forefront of the campaign to recover wages earned by generations of Indigenous workers who only received a tiny fraction of their earnings. She takes pride in their history and achievements. Williams (2007) emphasises that Cherbourg was built on a tradition of hard work.

It was strict upbringing but that made us better people. It made us stronger. We then passed it on to our own children and, you know, we can walk tall, say that, you know, we did not live on handouts.

Lesley Williams 2007

Until the Referendum of 1967, the more than two thousand residents of Cherbourg were not counted in the census, and had to apply for permission from an on-site Manager to leave the reserve. The speaking of Australian languages was discouraged and any resisters of the harsh regime were banished to more remote settlements such as Palm Island.

A principal objective of the Barambah settlement was to control and discipline those removed there. Barambah was never a passive institution where the displaced remnants of the indigenous inhabitants were able to maintain their culture and lifestyle without interference (Blake, 2001, p. 57).

First-hand stories still abound about the abuses of the dormitory system, the forcible separation of families and the sending out of girls as young as fourteen as domestic servants to distant cattle properties (Williams 2007, Morgan 2007). This has contributed to a strong “local culture” of resentment and rebellion against “white” laws, government and education. Intense resentment still lingers over the destruction at “hand-over” in 1986

by government authorities of the resources which has contributed to Cherbourg's self-sufficiency over the years: vegetable gardens, citrus orchards and abattoirs (Stanley pers comm. 2008).

Appendix 2

Experiments with pedagogy and methodology

One of the subjects likely to provoke spectacular displays of resistance in my class was mathematics. This motivated my attempts to find a more strengths-based way to approach it. During my first year at Cherbourg, I accompanied two classes on a three-day camp to Barambah Environmental Education Centre, not far from the community, on Wakka Wakka lands. One of the camp presenters had been taught some of the "traditional games" by students of Dr Ken Edwards and was keen to try them out with the children from Cherbourg. Several games were obviously designed to cultivate throwing skills. The instructor explained that in traditional times, children had to practice these games every day so they would be "deadly" at throwing with spears and boomerangs. The children really enjoyed these and were keen to improve, exhibiting a high level of cooperation and compliance to get camp jobs done in order to get out on the practice field. The other significant fact was their retention of numerical information when connected with the game. On returning to school, I examined the mathematics curriculum for my class and adapted two of the games with some easy changes. Target Toss (Game 1) used six hula hoops laid out in a triangle. Children quickly recalled the numerical combinations of possible throws. For older groups, possible variations include finding the average and mean scores, and changing the hoop numbers as new times tables are introduced. In my Year 3 class I found that stronger mathematicians typically the first ones to master new work, may be happy to help others "complete" maths tasks by letting them copy worksheets, for example. Others had expertise in computer use and seemed to be relatively accepting about always being called upon to get others onto the system.

One of the habits of Cherbourg's children is *Pinkin'*. *Pinkin'* often takes place after rain when the children scoop up small handfuls of the red, gritty clay and fashion it into a ball. These small missiles are released with great accuracy at any available target, including birds, animals, other people and windows. After a sustained rainy spell scraped-out holes began to appear all over the playground and the school administration came out with a warning that any child found *pinkin'* would face suspension. Looking at this from a strengths perspective as a skill, led me to the invention of *Power Pinkin'*. This gave a legitimate place, recognition and rules for *Pinkin'*, which could only be done in a wedge-shaped range similar to a discus or shot put range. From this game, we not only got outside for exercise, we also learned to estimate and measure in metres. In lessons, these numbers were used to arrange numbers (distances) in ascending and descending order, place numbers in ordinal ranking (give out 1st, 2nd, 3rd rosettes), round to the nearest 10, find the difference between any two throwers' distances and construct graphs. These two games (*Power Pinkin'* and Target Toss) reduced resistance behaviour in my class towards maths. I did, however have to face accusations from anxious school administrators which made it necessary for me to justify in considerable detail how these games addressed mathematical skills in a culturally-appropriate way. Such was their popularity that truants from other classes would approach me when my class was out playing the maths games, and ask to be allowed to play. A teacher who observed a Year 6 boy who joined in at his own request commented that he had never seen the child do so much mental arithmetic in a session.