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Education for Sustainability in Regional New South Wales, Australia: An Exploratory Study of Some Teachers' Perceptions

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The recent United Nations global summit in South Africa highlighted the importance of education in matters of economic and environmental sustainability. However, education about the environment is somewhat 'constrained' compared with more holistic notions such as education for sustainability (EfS). The literature suggests that EfS has considerable scope for developing students' views of sustainability in a global context with the concept seen as best delivered via an action-oriented, integrated-curriculum approach. Such an approach faces many barriers including teachers' views about EfS and its implementation. This study reports on an inquiry into some NSW primary and secondary teachers' views of EfS. Few of the participants were familiar with the concept of EfS in a formal sense, but they reported that they were already incorporating aspects of EfS into their teaching, suggesting broad agreement with the characteristics required for effective EFS presented in the literature. The teachers seem well aware of the socially-situated nature of EfS and its connection to issues of social justice. Examination of school curriculum in New South Wales suggests that it provides scope for delivering EfS, and if the new environmental education policy for schools is implemented effectively, it may help raise the profile of EfS.

Keywords: education, sustainability, perceptions, teachers, curriculum

Introduction and Literature Review

Education for Sustainability (EfS) is emerging as an increasingly important educational concept as evidenced by the New South Wales (NSW) Government's recent development of a new environmental education policy which moves away from traditional education *about* the environment to a much stronger focus on education *for* the environment. This policy will be mandatory for all public schools in NSW; however, its successful implementation and its uptake by schools outside the public sector will depend on teachers with good knowledge of and commitment to ecological sustainability. This paper charts the emergence of education for sustainability (EfS) and examines some of its characteristics. It

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goes on to report the findings of a qualitative case study involving a series of interviews conducted with primary and secondary teachers in regional (rural) New South Wales, in an attempt to determine their perceptions of EfS. This exploratory study was conducted prior to the arrival of the new policy document in schools, but it provides insight into teachers' belief systems about sustainability and their views on the benefits and difficulties involved in delivering EfS. The successful implementation of the new policy within the public education system and the extent to which it is adopted outside this sector is likely to depend on teachers with a good understanding of and commitment to EfS.

The emergence of education for sustainability as a concept

There is widespread consensus amongst commentators that education has a key role to play in our attempts to realise economic development that is ecologically sustainable. For example, according to Burch (1992), sustainable development must be a commitment to an ongoing process of learning and change and thus it is inherently educational. McKeown (2002) and Wingerter (2000) argue that current economic development trends are not sustainable and suggest that public awareness, education, and training are key to moving society towards sustainability. Furthermore, the report of the recent United Nations summit on sustainable development (United Nations, 2002) stated that education was critical for promoting sustainable development.

Mounting anxiety over environmental problems has meant considerable support for an educational approach to these problems. However, in the last decade or so, there have been growing concerns that traditional environmental education is too limited in its scope to effect the necessary attitudinal changes needed if ecological degradation is to be reduced. A number of authors (e.g. Bullard, 1993; Kothari & Parajuli, 1993; O'Connor, 1989) have called for the linking of ecological sustainability with social justice. Third World First (1990), echo this view when they state that wealthy 'middle class' people have the luxury of the 'privilege of concern' as they have the financial ability to look beyond their own livelihood, explore global issues, and make the connections between the environment and wealth generation. In contrast, lower socio-economic groups do not have such 'luxury', and it is only when they are involved in a practical and direct way with their local environment that they too can go on to make such connections.

This has clear implications for education, and Sterling (2001) states that early assumptions, shared by most people in environmental education, are simplistic and deterministic: in other words, if people learn about environmental issues, their behaviour will automatically change. Not only does such a simplistic connection not work, but overloading people with environmental knowledge (particularly in relation to global crises) is disempowering, without a deeper and broader learning process taking place. Huckle (1991) and Paden (2000) concur, arguing that the environment, equity and economics should be considered as a whole.

Concerns regarding the shortcomings of traditional environmental education have seen it evolve to include a social dimension, and thus become known as *education for sustainability* (EfS). Baines (1996) argued that without this change of perception the role of education in helping make the transition to sustainable development would be difficult to achieve. Blewitt (1998) also believed that

education for sustainability had moved beyond the more narrowly focused environmentalism and is now seen to encompass four major goals:

(1) to foster clear awareness of, and concern about, economic, social, political and ecological interdependence;
(2) to provide students with opportunities to develop the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment and achieve sustainable forms of human development;
(3) to encourage the emergence of responsible patterns of behaviour towards the local and global environment by individuals, communities and business; and
(4) to nurture a sense of intergenerational solidarity recognising sustainability principles as key to people's improved quality of life.

Blewitt's framework differs significantly from the apolitical, naturalist and scientific work that was carried out under the environmental education banner in the 1970s and early 1980s, as it is concerned with the *integration* of the complementary disciplines of environmental and development education, and requires reconciliation between environmental conservation and economic development. According to Bourn (2002), education about sustainable development is now emerging as a major item of debate. However, the inclusion of a strong social dimension can make EfS a more difficult educational concept to deliver than traditional environmental education.

Characteristics of education for sustainability

The literature on EfS indicates a number of key characteristics such as relevance, action-orientation, social criticism and holism, and these are discussed briefly below.

Sterling (1996) believes that EfS is *contextual*, and, where possible, EfS should be applied and grounded in the local economic, social and ecological context and community, followed by regional, national, international and global contexts. Tilbury (1995) likewise argues that *relevance* must be a central principle underlying EfS. It must encourage students to explore links between their personal lives and wider environmental and development concerns. Fien (2001) agrees that important aspects of pedagogy in EfS include encouraging students to explore questions, issues and problems of sustainability, especially in contexts relevant to them and their communities.

EfS offers the opportunity for students to use active learning approaches to develop critical thinking; linking curriculum content with real life, developing forward thinking and involving children in planning, monitoring and evaluation (Symons, 1996; Tilbury, 1995). According to Cloud (2000), action orientation in EfS helps to create optimism amongst students – an important feature of retaining optimism about global sustainability issues.

The socially critical nature of EfS has been addressed by authors such as Beddis and Johnson (1988), Jickling and Spork (1998) and Symons (1996). These writers feel that participation in EfS is not stimulated by the cognitive realm; rather it is dependent on personal motivation and a sense of responsibility that results from the development of a personal ethic. The nature of the debate about sustainability means that students will be faced with a number of diverse but linked issues such as poverty and consumerism. Thus there is little benefit in

presenting children with large amounts of information about what impacts upon sustainability; rather we need to challenge their thinking about issues such as consumerism in a way which encourages them to make value judgements about such issues.

While some might argue that geography as a discipline offers many of the characteristics cited above, Fien (1999) claims that within Australia, geography has been swamped by the rampant conservatism of politicians and educational bureaucrats in a way which has stifled innovation. As such, he believes that children may be missing out on an important educational experience. To exemplify this, Fien cited a curriculum officer of the Royal Geographical Society (Queensland) who relatively recently lamented what he felt was too heavy an emphasis placed on the environment, sustainability and citizenship these days, and not enough on geography (Comben, 1999). Morgan (2002) has also called for a more critical geography education and argued that teachers need to recognise that the ideals of neutrality and balance dominating current educational practices are in fact supportive of conservative ideas. Hence, as long as the forces of conservatism retain the upper hand in Australia, geography may not offer the best vehicle to deliver EfS.

There is also widespread agreement that EfS needs to be holistic in its approach (e.g. Orr, 1993; Sterling, 1996; Tickell, 1996; Webster, 1996; Wheeler, 2000) and that at the root of EfS lies the notion of interconnectedness. In most discussions of school curricula, people put environment and sustainability into 'boxes', most commonly science, geography, and biology, and occasionally technology. However, Tickell points out that these concepts are equally relevant to economics, history, sociology, politics and indeed, all but the most extreme specialisations. Fien (2001) concurs, claiming that it is vital for every school subject to play its part in ensuring that the principles of sustainability are deeply *embedded* in students' day-to-day learning experiences.

Despite the intrinsic holism of EfS, it is often difficult to attain it in schools, particularly at the secondary level (Wheeler, 2000). According to Webster (1996), the secondary curriculum infrastructure can prove a major barrier to the enlightened delivery of EfS. This occurs because cross-curricular themes generally run counter to mainstream traditions, with a professional elite guarding the status of 'their' knowledge, particularly when it is subject to external assessment. Goodson (1996) believes that this 'chauvinism' displayed in defence of school subjects can often be 'diametric in its opposition' to the development of innovative classroom practice.

Previous studies on teachers' perceptions of education for sustainability, sustainable development and environmental education

Research undertaken in Scottish secondary schools (Nixon *et al.*, 1999) confirmed the view of authors such as Webster and Wheeler that curriculum infrastructure poses a significant problem for the delivery of EfS, and Nixon *et al.* (1999) called for the establishment of structures that would touch on key issues relating to the management and governance of schools and would involve collaborative forums bringing together professional educators, parents and students, and community leaders. Nixon *et al.* believe that without such structures, EfS will continue to rely on the vision and commitment of a small number

of, often isolated, innovators and would remain, therefore, marginal to the mainstream curriculum.

Gayford (1998) found that secondary science teachers in the UK considered EfS to be an important concept and one that needed to be part of a whole-school approach. Furthermore, these teachers saw their role as providing students with skills, abilities and basic knowledge to be able to evaluate information and arrive at reasoned decisions. Providing factual information about the environment was not seen as sufficient to produce informed decision makers. However, these very positive findings contrast work by Ballantyne (1999) who surveyed 419 geography teachers from 18 countries and found an emphasis on developing environmental knowledge, rather than decision making or action-orientation in relation to the environment. Both Fourez (1997) and Sterling (2001) are critical of this latter approach arguing that EfS cannot make everyone an expert, but should rather develop individuals' ability to 'ask the right questions' and evaluate answers appropriately.

A number of studies across different cultural contexts have indicated that, in general, teachers and students share a strong interest about issues of sustainability and the environment (e.g. Cross, 1998; Gayford, 1998; Ho, 1998). However, understanding about key environmental issues related to sustainable development such as biodiversity and global warming is often weak (e.g. Mansaray *et al.*, 1998; Summers *et al.*, 2000; Yencken *et al.*, 2000).

In Australia, the context of this study, research in the last decade indicated that the term environmental did not extend to include social aspects such as values, ethics, morals, motivations, behaviours and actions (see e.g. Gough, 1987; O'Donohue, 1990; Spork, 1992), and Fien (2000) believes that this still holds true. Bourn (2002) suggests that this lack of a social dimension may be, in part, due to the fact that environmental educationalists in Australia typically come from a strong natural history background.

Fien (2001) argues that if EfS is to have major impact, there needs to be a reorientation of education within Australia towards sustainability. Such a reorientation would involve, amongst other things, a move away from centralised, mandatory courses and textbooks towards locally relevant learning programmes, new ways of assessing the processes and outcomes of learning and alternative purposes and approaches for students' credentials. Fien argues that this need not require great financial or other resources, but would require political will, particularly from state governments who would need to be willing to model an interdepartmental, cooperative approach to sustainability. Schools and the community could then take up that lead with whole-school, community-inclusive approaches that aim to engage each individual, adult and child, in the process of seeking sustainable lifestyles.

Recently, the NSW Government has gone some way down the path described by Fien (2001) with the introduction of an Environmental Education policy for schools (NSW Department of Education and Training, 2001a & b). This could not be considered a reorientation education as described by Fien, but does appear to be a genuine attempt to more fully embed EfS within the culture of individual schools and also encourage them to engage with the local community. The success of this initiative will depend not only on the policy itself, but on local teachers' beliefs and attitudes, as ultimately teachers' attitudes determine

whether or not the curriculum plans reproduce the existing social and cultural mores, or contribute to empowering people for participation in civil society.

This study attempts to provide some indication of regional NSW teachers' knowledge of and attitudes to EfS as a concept. At the time of the research, the new NSW Government policy on environmental education was still very much in its infancy and the policy document was only just being distributed to schools. However, the findings of the study provide insight into how teachers perceive EfS and as such may be indicative of their response to the new policy.

Methodology

The methodological approach selected for this research inquiry was a qualitative approach within an interpretivist paradigm (Guba & Lincoln, 1989, 1994). A qualitative approach was deemed to be the most appropriate approach because the researchers wished to gain an in-depth understanding of the teachers' perceptions of a very holistic concept, namely, EfS. The literature also suggests that notions of curriculum implementation are socially situated and strongly dependent on the social and cultural context in which the implementation is enacted (see e.g. Jones, in press). Given that teachers may hold idiosyncratic views as to the nature and meaning of sustainability and EfS, it is necessary to use a research approach that takes into account the social structures and culture of the individuals involved in curriculum development and the teaching of these topics: hence, socicultural views of learning also informed this study. These views place considerable emphasis on the social component within the particular context in which learning occurs.

Sociocultural learning theories extend traditional learning theories by placing greater emphasis on the social aspect of knowledge acquisition, which Vygotsky (1987) suggests is *mediated* by 'tools' and 'signs'. Tools and signs, particularly language, are representational in nature and inherently socially situated – that is, they are not simply 'organic' or individual. So whilst traditional thinking would have it that scientific concepts and language are able to be lifted out of a context (e.g. as seen in terms like EfS and sustainability), a social language is a way of speaking that is characterised by a particular group in a specific sociocultural setting (Bakhtin, 1981). Wertsch (1991: 96) points out that this means: 'Instead of defining mediational means in terms of linguistic units abstracted away from voices and communicative contexts, researchers should define these means in terms of phenomena that are by their very nature socioculturally situated.' In the context of this inquiry, language use, then, is critical and the meaning ascribed to terms such as 'EfS' and 'sustainability' is clearly socially situated.

From a sociocultural viewpoint, we need to develop an understanding of the context of this inquiry, and to allow the participants to express their views as to the concepts under investigation via an appropriate methodology. First we provide a description of the sample and follow this with a description of the methods used in the study. A purposeful sample of 13 teachers, both primary and secondary, from schools in a rural area of the Northern Tablelands of New South Wales formed the basis of this study (within Australia each state develops its own curriculum). This geographical region was selected for pragmatic reasons, in that two of the authors work within it. The location and sample

selected are, however, germane to the research objectives of this inquiry. The region is predominantly agricultural and suffers considerable environmental degradation as a result of extensive land clearance and unsustainable agricultural practices, with, for example, soil salinity and erosion being issues of increasing concern. Many of the issues of sustainability reported for the Northern Tablelands are common to other parts of regional Australia where agriculture predominates.

All of the teachers were self-identified as having an interest in environmental education. The sample was selected after discussion with a member of a regional environmental education centre who suggested that these teachers, being committed to environmental issues, would provide interesting insight into teacher perceptions of EfS. Patton (1990) points out that a convenience sample such as that used in this inquiry is appropriate provided the sample represents a target group relevant to the inquiry – as mentioned above, this is indeed the case here. A mix of primary and secondary teachers provided an opportunity to explore the issue of holism in EfS, which potentially problematic at the secondary level but is likely to be easier to achieve at the primary level since the same teacher addresses a number of subjects or key learning areas. The schools represented a mixture of private and public institutions with some of the private schools having boarding sections and drawing students from outside of the region. All of the private schools were connected to specific religious organisations within Australia. Of the teachers involved in the study, six were primary (4 female and 2 male) and seven were secondary (5 female and 2 male) drawn from science, geography and the earth sciences. All of the teachers had been in the profession for at least five years and all had visited the regional environmental education centre either with classes or to collect resource materials.

Data collection and analysis

The primary data source consisted of semi-structured interviews, typically of about 45–50 minutes duration. In these interviews the teachers were initially asked to describe their understanding of the term 'sustainable development', before being asked if they had heard of the concept of EfS. Those who had come across EfS were probed as to their understanding of the term, whereas participants unfamiliar with the term were asked to consider the term in the context of the interview, thus accessing their intuitive views. Participants were also probed as to common teaching practices in EfS and other relevant areas, and were specifically probed as to whether or not they believed that they were currently actively engaged in delivering aspects of EfS.

An interview with a member of the regional environmental education centre mentioned above, familiar with the teachers involved in the study, was used for the purpose of triangulation. Further triangulation involved examination of curriculum documents at both primary and secondary levels in order to determine whether these curricula offered teachers opportunities to deliver EfS.

All the interviews were audiotaped, fully transcribed, then returned to the interviewees for member-checking. Most of the participants were satisfied with their transcriptions while a few returned the transcripts requesting some adjustments that were subsequently made. After reading the transcripts, a number of categories emerged from the interview data. Some of these categories related

directly to specific interview questions while others emerged during discourse. These themes have been used to structure the report of the research findings presented below. Excerpts of the interview data have been extracted from the appropriate categories and used to support the data analysis and summary of findings. All the excerpts quoted are verbatim transcriptions from the taped interviews, although transcriptions have undergone light editing to improve readability (e.g. removal of repeated words, removal of filler words, and changes of tense, etc.). Particular care was taken to avoid changing the meaning of any of the participants' views and pseudonyms are used throughout.

Research Findings

Teachers' knowledge and understanding of the concept of sustainable development

The teachers were asked for their understanding of the concept of sustainable development. All teachers were familiar with the concept and most, like Sarah, related sustainable development to the long-term exploitation of natural resources while avoiding, or at least minimising, environmental damage:

> Well, sustainable development, as far as our syllabus is concerned, and what we teach the kids is that it's development that uses current resources but ensures that plenty is left for future generations and that it's a process that can keep going on and on without harming the environment or reducing those resources.

These teachers' views of sustainable development thus appear to be similar to those presented in the Bruntland Report, *Our Common Future* (WCED, 1987), namely, a form of development that does not compromise the ability of future generations to meet their needs. However, relatively few seemed to be aware of potential internal contradictions or tensions implicit in the notion 'sustainable development' (Cross, 1998). In fact, one teacher suggested that we could continue to enjoy our current high standard of living and at the same time maintain environmental biodiversity. While it may be conceivable that a good *quality* of life is compatible with sustainable development, it seems unlikely that our current standard of living in the material sense can be maintained (and indeed be extended globally), if this is based upon a highly consumptive lifestyle.

Only three teachers raised the issue of an internal contradiction in the notion of sustainable development. Don commented:

> It's all about promoting economic growth but doing it in an ecologically sustainable way. Incorporating as much as possible the use of renewable technologies and renewable energies. Promoting growth in a way that minimises harm to the environment. Always strikes me as being an unusual term because I always think of environmental issues and development issues as being at opposite ends of the spectrum and ecologically sustainable development . . . well it just seems to be a term that doesn't makes much sense. It seems to be more of an oxymoron.

The teachers also were asked if they believed that sustainable development was achievable in a global context and about half saw this as very unlikely

because of the short-term economic goals of governments and politicians (and indeed most individuals). Sarah commented:

> Ultimately it all depends on politics and on finance. And you know . . . I'm a bit cynical I think. Governments tend to look for short-term positives and things that will get them re-elected and if that's anti-environment then so be it . . . I think that the environmental issues that face us at the moment will require very long-term action. That is not necessarily a short-term good for industry or politicians or people in general but it's going to take . . . you know . . . people are going to have to tough it out . . . I think it's all about politics and money . . . it requires politicians to have longer-term views even than their own political career, and I don't think there are any of them that have that.

Don also argued that current political systems militated against achieving sustainable development:

> I think it probably is governments who are either too complacent or . . . obviously . . . in a globalised world they have difficulty implementing policies that are not going to harm economies. If you see Australia at the moment adopting the same position as the USA on the Kyoto Agreement . . . total reluctance to ratify because it's going to harm the [Australian] economy.

Others felt that sustainable development was unlikely given current population growth rates in developing countries and high levels of consumption in the West:

> Not unless there is a huge reduction in the world's population . . . also people need to be prepared to live more simply. That may perhaps be a bad term, but 'walk lighter on the earth' is a better way of putting it. So they would cut down the use of cars, cut down the use of a whole lot of energy resources. It's been pointed out often that . . . I think it's something like 114 Namibians equals the consumption of one USA person or one Australian. Therefore it's not a case of gross population . . . but how much per person consumes. (Richard)

Of the seven teachers who felt that sustainable development was achievable, two felt that this would only be possible given a change of political will. For example, Angela commented: 'it's definitely achievable but whether it's going to be achieved by present political circumstances I don't know'. Some of the teachers felt that sustainable development could be achieved within the current political structure and all felt that education would play a key role. Even teachers who were pessimistic about achieving sustainable development saw education as the great hope and, moreover, felt a sense of personal responsibility, with Gary, whilst arguing that sustainable development was 'a dream' going on to say: 'but I think that goals of, you know, clean water, clean air, clean food, and environment and ecosystems that are sort of as healthy as possible, you know, they have to be goals that the kids aspire to'.

It is interesting to note that none of the teachers interviewed identified technological advances as potential contributors to sustainable development or solutions to environmental problems in the future.

In summary, it seems that all of the teachers interviewed had some understanding of sustainable development and most were well informed politically, although there was a mixed response to sustainable development as an achievable concept. All of the teachers saw the role of education as vital if we were to move towards more sustainable lifestyles and more than half of the sample were quite optimistic that sustainable development could be achieved.

Teachers' knowledge and understanding of the concept of education for sustainability and the distinction between education for sustainability and environmental education

The teachers were also asked explicitly if they had heard of the concept of education for sustainability (EfS). Although all of them had previously claimed an understanding of sustainable development, only three said that they were familiar with the concept of EfS. For example, Richard stated:

> Yes, I am familiar with it. My understanding of the use of that term is that it involves all the aspects of your education, speaking in the school terms . . . producing people with a much less damaging impact on the environment, and at the same time in theory they are living at a higher level. If you define that higher level of development . . . now an ascetic sitting in a cave in India may regard himself at a higher level of development, but normally we use the normal indicators of wealthy nations. It's a matter of changing those indicators. I believe that people with this ethic would have love of country, love of diversity, love of other species. And in fact, they have got to love other things more than themselves.

Despite being familiar with EfS, Richard clearly had some difficulty in articulating his views of this term. His view was holistic in nature and he seemed aware that children need to be educated to appreciate quality of life rather than material gain as part of EfS. The other two teachers who said they were familiar with EfS had encountered EfS in their teaching materials as the term was specifically mentioned in the resources they used.

Those who had not heard of EfS were still happy to discuss their ideas and attempt an explanation of the concept, as seen in Kathryn's comments:

> I suppose it would be looking at different areas of the curriculum and saying how does this relate to sustainable development or sustainability. I suppose my understanding would be teaching kids how different actions that they take can have one cause and effect or another and they can look at one that's unsustainable and compare it to one that's a sustainable course of action.

Although this teacher had never encountered the term EfS previously, she seemed to have an intuitive belief that this concept should involve *action* in some form. This was common to a number of the teachers. At this stage in each interview none of the teachers talked about social justice; however, when they were asked how they saw EfS in comparison with environmental education, three teachers talked about social justice, as seen in Gary's comments:

> I gather EfS is a broader approach. It puts people squarely in the syllabus and the impact of humans on ecosystems and how do we cope with this exponentially rising population. Environmental education is perhaps more narrow, perhaps compartmentalises and it might be seen as just issue-based like greenhouse or ozone. In strict sort of environmental education and science we wouldn't include a political dimension. We wouldn't talk about World Bank loans to countries and their implications.

It seems that these teachers saw EfS as a broader concept than traditional environmental education, with an implicit notion of social justice and perhaps political literacy. Certainly, Gary mentioned a political dimension presently lacking in conventional environmental education and Paula alluded to social justice in questioning our right to judge poorer societies for the environmental degradation they are causing, saying 'why should we be telling the Brazilian people, who are far less developed, that they should not be burning any forests?'. These teachers perceived EfS as including the social aspects that authors such as Fien (2000) O'Donohue (1990) and Spork (1992) claimed were missing from 'environmental' education.

A few of the teachers had difficulty distinguishing between EfS and environmental education as seen in Kathryn's comment:

> I can't see a huge . . . no I can't . . . I don't see a huge difference between the two because I see that they are very connected. And one is a means . . . you know, environmental education is a means towards sustainability. It's hard to see how I would define them differently.

Similarly, another teacher, Sarah, felt that EfS was simply a part of environmental education: 'I think EfS is a sub-section of environmental education . . . so I wouldn't say that it's one and the same, I'd say that EfS actually is environmental, another environmental area'.

However, the more common view held by the teachers, despite being unfamiliar with the term EfS before the interview, was that EfS is a broader concept than environmental education. For example, Angela commented that 'sustainability deals with all sorts of commercial aspects. Sustainability refers to all of life whereas the environment is what's out there'. It was encouraging that most viewed EfS as broader than environmental education and a number indicated that this was because EfS incorporated a greater social dimension than environmental education.

Teachers' perceptions of important issues in teaching about sustainability

All of the teachers saw a need to consider issues outside the natural environment when addressing sustainability, and, for example, a number raised the issues of globalisation and consumerism. They then related these issues to social justice which most teachers did not consider when they were first questioned about sustainable development and EfS:

> You've got to look at the commercial side of things. In fact . . . globalisation is not necessarily a good thing. It's useful, it's helpful in establishing businesses, you can sort of start the business you want if you have a global

> market but I don't think it's the 'be all and end all'. I can't see us talking about a global village without having a village mentality and that is caring for the other members of that village. I think America practises a type of terrorism which is benign, or seen as benign. I [personally] think it's cultural terrorism and it's economic terrorism. (Angela)

Angela illustrated her argument with a description of 'the Nestlé example' in which she talked about a large multinational company introducing a milk formula in India, without providing locals with 'the ability to clean bottles' resulting in many infant deaths. Hence, it seems that teachers like Angela felt a strong sense of social justice with respect to the behaviour of multinational companies in developing countries.

The teachers did not only single out multinationals for criticism; they also looked at Australia's stance on environmental and sustainability issues. Sarah, for instance, commented on the Australian Government's reluctance to sign the Kyoto Protocol:

> Consumerism comes into it because that's what it's all about, consumerism versus sustainability or the impact of consumerism on sustainability. So you definitely go into that during discussions. In the Year–11 earth and environment syllabus, there is actually a section that requires us to look at the difference between third world and Western world use of resources. We talk about things like the Kyoto Protocol and why the Western world has to cut its emissions within a certain number of years whereas the third world is given a bit more time. We go into discussions about it so that the kids can see that the wealth of countries, the political stability of the countries, and the natural resources of some countries will influence whether they can become environmentally sustainable as quickly as the rest of the world.

Here Sarah seems to be arguing that teachers need to include issues of social justice in teaching, suggesting that developing countries may need more time to reduce their greenhouse gas emissions, and it seems she was seeking to develop a link between justice and environmental issues.

All of the teachers agreed that educating students for sustainability was inevitably value-laden, but in general felt comfortable with this notion, as seen in Andrew's comment:

> There is nothing wrong with creating values within the children. You've got to do that. I think for a lot of children, school is the only opportunity they get to develop values. It won't happen, unfortunately, in the home to the degree it should. We have the opportunity . . . the children know that it's a big society and they are part of it and these are the things that society is about and environment and sustainability are part of it.

Don, however, sounded a note of caution arguing for a 'balanced' view to be presented when approaching controversial issues.

While teachers clearly have to tread carefully in this area, it is almost impossible to provide a totally balanced view within EfS and Don may have overlooked this fact. For example, it would be difficult to argue both sides of the

issue of powdered baby milk sales in the developing world, and it was clear that Angela, who raised that issue, had no problems presenting it to her students from her own perspective and taking a moral stance.

It was encouraging to note that most of the teachers interviewed did not tow the conservative line of 'neutrality and balance' (Morgan, 2002) in their teaching, but were generally prepared to 'take a stand' on issues they felt strongly about.

Teachers' perceptions of their practice in education for sustainability

The teachers were asked if they felt that they were contributing to EfS through their present teaching, and if they responded in the affirmative, were asked to give examples of specific skills and content areas they saw as related to EfS. All of the teachers felt they were incorporating some aspects of EfS into their teaching. Angela, a secondary level teacher of geography stated:

> We compare Aboriginal perceptions with white perceptions. I'm hoping that they will see that 'get big get out' is not always the way. I'm hoping that they will see that it is not necessary to keep on exploiting. I also look at issues of consumption. I'm always asking in a quick quiz type situation, 'Who uses more, a child born in Nigeria or a child born in North America?'

Angela appears to be incorporating important aspects of EfS into her teaching, and it seems that she was prepared to link issues of social justice to environmental issues at both a local and global level. Furthermore, she also appeared to be attempting to get her students discussing relevant issues in a socially critical manner (Beddis & Johnson, 1988; Spork, 1998; Symons, 1996). By making them question the need to continually generate more wealth through exploitation she was also hoping to challenge their thinking.

It is worthwhile to recall that Angela reported being familiar with EfS and this probably influenced her teaching. However, other teachers ostensibly unfamiliar with EfS reported incorporating aspects of EfS into their teaching. To illustrate, Don, a secondary school geography teacher unfamiliar with the concept of EfS, nonetheless reported introducing the notion of an energy audit in his classes.

> I have in the past had students do some sort of audit that was tied to things that they have at home, and the types of things that they've got in the past that they've not used and think about the amount of energy that has been spent on making things. We look at energy consumption on a global basis but by country. So we look at Australia and compare that to a third world country. The students can then see that the smaller populations in industrialised countries have much more responsibility for waste or excessive use of resources.

In conducting a consumption energy audit Don was making an important issue both relevant and in a sense action-oriented (Cloud, 2000; Fien, 2001; Tilbury, 1995). By comparing per capita consumption of energy in Australia with that of developing countries, he was challenging his students' values. Thus although Don was not familiar with EfS, he was intuitively incorporating it into his practice. Similar practice also was reported by the primary level teachers, and, for

example, Amy who had taught a range of primary level classes sought to develop both skills and content knowledge appropriate for EfS in her students:

> From a very early age they are learning about content and they are actually gaining skills in how to monitor their own behaviour, monitor the behaviour of other people and evaluate its effect on our environment. So it gives them the right sense of responsibility and develops that sense of community and further develops that knowledge that it's a global village and that they are a part of it.

Again, despite not having heard of EfS, it seems Amy intuitively incorporated important elements of the concept into her 'normal' teaching practice. In fact, the issue of instilling attitudes and values associated with EfS in children was also considered to be of paramount importance by most of the teachers.

Furthermore, none of the teachers felt that the curriculum constrained them in their teaching of EfS-related issues, and in fact many claimed that the curricular and policy documents were beneficial in guiding them.

Teachers' views on the skills and content in education for sustainability

The teachers were also asked what skills and content they would incorporate if they were designing their own programme for EfS. Once again, although most teachers had not heard of EfS before the interview, they showed an intuitive understanding of what the concept might encompass in the classroom, at primary and secondary levels. For example, Gary saw critical thinking as a key component of any EfS programme:

> It would be good to look at as pristine as possible an ecosystem, and just see how it worked, and then look at a degraded system and find out what's happening to it. You know, what have been the impacts of humans and introduced species on it? How has the ecosystem changed and study the impacts. You could attempt to get the kids to gain a way of thinking. First of all is the ability to perhaps research an issue or a problem or a situation or a scenario. Simply to research it and then to critically think about it. To ask the right questions about is this development consistent with ecologically sustainable development ideas?

Although not particularly specific, Gary was talking about developing lifelong skills that would help children to make informed decisions in the future. His suggestion was typical of all of those presented in being strongly action-orientated and all the teachers seemed to realise this would make such activities both relevant and enjoyable for their classes.

The primary teachers advocated a similar approach, as seen in Amy's comments:

> I guess because I'm a very practical person, I'd focus on doing things that would harness the children's abilities so that if it was a multi-age group, it would be a project at some point which promoted that . . . brainstorming, forming something up, evaluating it in a reflective mode. But it would be of a practical nature in terms of marketing something, growing something, changing a practice that we have at school, not necessarily on a big grand

> scale but looking around and problem solving. Team work and definitely analysing and synthesising . . . all sorts of things . . . all these skills and attitudes will come out of the group activities.

The teachers were not specific about what they would actually incorporate into an EfS programme; this may, in part, be a reflection of the nature of EfS itself. Although few proposed any particular content, three teachers mentioned water, a major issue in NSW at the time of writing, with droughts and increased salinity topical issues in the media. The teachers concentrated largely on how they would develop critical thinking skills and caring attitudes in their students which they clearly saw as important if they were to make appropriate choices in the future.

Adopting a whole-school approach to education for sustainability

Holism is one of the central tenets of EfS, as is evident from the attention given to this issue in much of the literature (see e.g. Sterling, 1996). When the teachers were asked about a whole-school approach, all were in favour of holism in a cross-curricular sense. However, some expressed doubts about the practicalities of such an approach. Certainly, the secondary teachers saw school structures as major impediments to achieving holism in EfS.

> We've tried this approach for years. But due to the constraints of syllabus requirements it's often difficult. That's the thrust of the department of education in NSW. They expect that when an environmental programme is instituted in a school that everybody participates. But the reality is they do it but in their own microcosms and really we are not functioning as a whole unit. Primary schools have a more collegial nature . . . here in a secondary school a student has eight different teachers and they all have their own syllabus, and they all must get through that syllabus so they are driven. It is much more difficult with compartmentalised syllabus and yet it's not that we are uncooperative. It's just how secondary schools operate. (Paula)

This secondary teacher clearly had a major issue with the school structures which in her view constrained or even prevented a cross-curricular approach to areas such as environmental education and by implication EfS. She appeared rather frustrated that such an approach was expected by the NSW Department of Education, who she felt at the same time offered no practical advice as to how to overcome the inevitable 'compartmentalisation' of knowledge in secondary schools. She implied that she would like to see significant changes in school structures but felt powerless to do anything about this.

Gary shared these sentiments and, in addition, pointed to an overcrowded secondary curriculum which he saw as a major constraint to delivering EfS effectively:

> The truth is that the syllabuses in each KLA [Key Learning Area] at the moment are too big. So that what happens . . . if there is pressure put on us at the school to teach environmental education as well, everyone says, well look, our syllabus is already jam-packed.

However, in principle he felt that all subject areas should be delivering some EfS and argued for a complete review of the curriculum to this effect.

Like Paula, Gary felt that a cross-curricular approach might be difficult because of the school curriculum infrastructures. Both contrasted the secondary and primary situations, seeing the primary sector more amenable to an approach. However, perhaps Gary in particular was making too much of the impediments created by school structures. For example, there is no reason why a complete syllabus review is required to introduce elements of EfS into mathematics. What is needed is really a change of emphasis on the part of the teacher delivering it. For example, the inclusion of energy and consumption audits, as mentioned previously, could be used to develop mathematical skills, while at the same time challenging students' values.

The primary teachers did not perceive holism as an issue to the same extent – perhaps because as Paula and Gary suggested, primary teachers work within 'friendlier structures' in this respect. This view was supported by Vicki, a primary teacher who said:

> It's not like at high school where you get half an hour or 50 minutes just for one subject. Here you are doing it all the time and changing it, bringing it together. So I'm just doing a unit on families, Aboriginal families, so that will come into it too. That would be economic sustainability, because they had a different approach to the land. We'll be talking about refugees and what's it like back in some of the countries from which they come. So really the whole thing is together.

It seems these teachers interpreted the concept of holism as meaning cross-curricular. The literature suggests that holism can be much more than that, and in terms of EfS, holism might imply that this concept pervades the whole ethos of the school rather than being limited to school curricula. However, as teachers are largely focused on the curriculum it is understandable that they would interpret holism in this way, and it is encouraging that they believed EfS should pervade the curriculum.

An interview also was conducted with an environmental education officer (Janet) from a regional environmental education centre. This centre provides field experience in environmental education for primary and secondary students. The interview indicated that Janet held a view of EfS which was similar to that presented in the literature, with a strong emphasis on developing values and attitudes (e.g. Tilbury, 1995). However, she believed that conceptual knowledge was also very important.

Janet also felt that a social dimension was crucial when addressing environmental issues. As she saw it, 'if you look at environmental issues and problems they are part and parcel of social structures. They are embedded within the ways of doing things in a society and culture'. She felt that many of the teachers were unfamiliar with the concept of EfS, commenting, 'remember that the notion of sustainability is new in our curriculum in NSW'. Furthermore, Janet confirmed some of the problems raised by the teachers concerning the issue of holism in delivering EfS and in particular the divide between the primary and secondary sector in this respect.

> The bulk of our work is with primary schools and there are a number of practical reasons. I guess I find it easier to work with primary schools. With secondary schools we deal with the science department or the geography department. The English teachers don't come anywhere near us because they don't see it as their providence.

However, she felt that there was plenty of scope within the curriculum for delivering EfS but argued for a pragmatic approach in encouraging teachers to do this.

> If you look at our curriculum closely, you'll see that the outcomes are there which allow us to educate for sustainability if we wish. We have to be really careful that we don't ram things down people's throats. We have to work within the curriculum because teachers have to work within the curriculum.

Janet highlighted a number of specific areas within the NSW curriculum that she felt lent themselves to the delivery of issues of sustainability, although she felt that the actual term sustainability was rarely used.

A detailed examination of the current NSW curriculum documents at both the primary and secondary levels confirmed that the objectives and outcomes offer considerable scope for delivering EfS. Many of these are action-oriented and clearly designed to demonstrate that students are developing positive attitudes and values in keeping with the principles of EfS (e.g. Symons, 1996). Furthermore, the new environmental education policy (NSW DET, 2001a, 2001b) mentioned previously appears to offer considerable potential for promoting EfS as it is intended to encourage the discussion of controversial issues, the development of problem-solving skills and the active participation of all individuals in environmental issues. Certainly, the introduction to the policy document indicates that it has embraced the principles of EfS:

> . . . anticipated outcomes involve critical appraisal and active participation by all individuals in environmental issues. This shift encourages the development of attitudes, behaviours and problem-solving skills to build responsible and committed individuals. Students are expected to make decisions for the environment which reflect an understanding of ecologically sustainable development. (NSW DET, 2001b)

Discussion

This research is an exploratory study into a group of teachers' knowledge of and attitudes to EfS. Given that the group comprised a purposeful sample of teachers with a commitment to environmental education, it was perhaps surprising that few participants (3 out of 13) reported being familiar with the notion of EfS. This may reflect the fact that the concept is relatively new, or as Bourn (2002) suggests, it may be because environmental educationalists in Australia typically come from a very strong natural environment focus. Whatever the reason, there would appear to be a strong case for promoting EfS more vigorously in Australian schools. Certainly, given that this group of teachers with an environmental interest had little explicit knowledge of EfS, it seems likely that the situation will be much worse amongst the broader teaching

population. The introduction of the new state Government policy may help improve this situation, as it does appear to promote many of the principles of EfS, such as relevance, action-orientation, critical thinking and the development of positive values in students. Furthermore, the policy makes considerable reference to the concept of sustainability and it is intended to be holistic not only in the curricular sense but also in relation to other school policies such as purchasing and waste disposal.

However, the manner in which schools actually implement this policy will depend on the knowledge and commitment of the staff involved and ultimately this will have considerable impact on the promotion of EfS in NSW. One of the major problems facing the NSW Government in implementing the policy is that it is only mandatory in government schools which cater for around 70% of the student population.

Nevertheless, this study indicated that within regional NSW there is clearly a body of teachers with sufficient knowledge of and commitment to EfS to allow for optimism in respect of the policy implementation, even in those schools where it is not mandatory. For although many of the sample had not heard of the term EfS, they generally had an intuitive understanding of this concept and how it might differ from traditional environmental education similar to that presented in the literature (e.g. Fien, 2001; Fourez, 1997; Sterling, 2001). Furthermore, all of the participants believed that issues of social justice needed to be addressed by teachers when dealing with environmental issues and many claimed to be including such issues in their current practice. Even those teachers sceptical about ever achieving the goal of sustainability still believed that education offered the best hope. The teachers also demonstrated a high level of political literacy and unlike teachers in other studies (e.g. Ballantyne, 1999; Cross, 1998; Summers *et al*., 2000) there were no indications that these teachers were deficient in their understanding of key environmental and social issues, and how these might be interrelated. Furthermore, they appeared to embrace the notion that education should not simply focus on environmental knowledge and attitudes, but should influence students' decision making in relation to the environment.

There was general consensus that EfS should be delivered across the curriculum, although those working in the secondary sector confirmed the difficulties pointed to by Webster (1996) and Wheeler (2000). As Cross (1998) found in his study of teachers in the USA and Scotland, teachers in this study were acutely aware of the dichotomy created by the holistic nature of the problem of sustainability and the structural arrangements of subject divisions within secondary schools. In fact, some teachers felt that it was unrealistic of the Government to insist on a cross-curricular approach while maintaining those structures that impede such an approach, thus implicitly echoing the call by Fien (2001) for a restructuring of education towards sustainability. While this is unlikely to happen, the introduction of the new environmental education policy does appear to offer a considerable window of opportunity for the effective delivery of EfS. Certainly the policy is designed to encourage as an holistic approach as is possible given the constraints of the present school structures, particularly at the secondary level, as it is designed to engage the whole school and the wider community in thinking about sustainability. At the time of this research the policy was still in its infancy, having just been circulated to the public education

sector in NSW. However, this research indicates that within northern NSW there is a group of well-informed, committed teachers who appear not to be constrained by conservative forces and are willing to take a stand on issues of social justice within their teaching. If this is replicated throughout the state then the future for the new policy looks promising. However, it is to be hoped that the policy will be embraced by all teachers and not be marginalised, relying, as Nixon *et al*. (1999) suggest, on a small number of innovators.

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Appendix A: Interview Protocol

(1) What is your understanding of the term sustainable development?
(2) Do you feel that sustainable development is achievable? If so, what will contribute to this?
(3) How important do you feel education is in helping to achieve sustainable development?
(4) Are you familiar with the term education for sustainability (EfS)? If no, could you explain to me what your understanding of the term education for sustainability is within your own subject area?
(5) Do you feel that any of the content or skills that you teach in your subject contribute to education for sustainability? If so, could you give me some examples?
(6) If you were designing a teaching programme for education for sustainability, what key things (in terms of content and skills) would you include?
(7) Do you think a whole-school approach is a good way to deliver concepts like education for sustainability?
(8) Do you think that there is a difference between environmental education and education for sustainability?
(9) Do you use the Environmental Education Centre and does it impact on your teaching? How?
(10) Should teaching and learning about how we can move towards a more sustainable society concentrate on environmental awareness?
(11) What other issues do you think should be included?