

Leading for sustainability: Is surface understanding enough?

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Abstract

Purpose

This paper reports an investigation of how education for sustainability is conceptualised, incorporated across the curriculum and led in three Western Australian government secondary schools. It also reports on processes to enable education for sustainability to become embedded into these schools.

Methodology

Data for the research were gathered through semi-structured interviews with teachers who were reputedly leading education for sustainability.

Findings

With the exception of one participant, the concept of education for sustainability is not widely embraced in the schools of this study. Instead participants focus only on the environmental aspect of sustainability. Again, with the exception of one participant, education for sustainability remains fragmented and vulnerable to changing school conditions. Leadership of education for sustainability occurs whimsically and with little vision for the future across this study with little evidence of alliance building or collaboration among colleagues.

Practical implications

We conclude that leading for sustainability requires a combination of a deep knowledge of sustainability; forward thinking and the ability to imagine a different future; the interpersonal and networking skills to build strong relationships; and the energy and capability of taking action to achieve the imagined different future.

Article type: Research paper

Keywords: Education for sustainability, Educational leadership, Western Australia

Introduction

Our research addresses the national and international sustainability agenda by contributing to the existing knowledge base relating to education for sustainability. The study is set in Western Australian government secondary schools and investigates two issues: the leadership involved in establishing education for sustainability; and how education for sustainability may or may not become embedded across the curriculum and sustained in teaching and learning practice. The research captures participants' understanding of first, how education for sustainability is conceptualised; second, how education for sustainability is incorporated across the curriculum; third, how education for sustainability is led; and fourth, which processes enable education for sustainability to become embedded into the study schools.

The significance of this research is linked to the United Nations declaration of the Decade of Education for Sustainable Development (2005-2014) (Tilbury & Goldstein, 2003). The research is significant because the Australian Government recognises the importance of environmental education and education for sustainability in its policy documents such as 'National Action Plan Environmental Education for a Sustainable Future' (DEH, 2000) and 'Educating for a Sustainable Future' (DEH, 2005). Other initiatives include the establishment of the National Environmental Education Network (NEEN, 2001), the Australian Research Institute in Education for Sustainability (ARIES, 2003), and the 2003 National Sustainable Schools Initiative (AuSSI) (DEH, 2005; Tilbury, Coleman & Garlick, 2005).

The importance of education for sustainability is reflected in the ‘Western Australian Curriculum Framework’ (Curriculum Council of WA, 1998). This is the framework which addresses the learning outcomes for compulsory schooling in all Western Australian schools. However, there is no documented material available to explicate the teaching of education for sustainability in secondary schools. Furthermore, there is a paucity of relevant research in Western Australia. This study is a small step towards filling that gap by providing a richly descriptive analysis of how education for sustainability is conceptualised, led and embedded across the secondary curriculum in our study schools.

Background

Education for Sustainability

There are important differences between the concepts of ‘education for sustainability’ and ‘environmental education’ although the terms have been used interchangeably in curriculum documents, policy documents and by community groups (Gough, 2006). Environmental education in the 1970s aimed to inform the world population about the environment and its problems. Although the concept of sustainability emerged during the 1980s the term was not commonly used until the 1990s. Major differences between the concepts are due to the ‘nature study’ focus of environmental education and the contemporary three-pronged approach of sustainability (Fien & Tilbury, 2002). The three-prongs of this approach are the long term future of the environment, the economy, and the social justice of communities (Fien, 2001).

Despite the continual evolution of the concept of sustainability, the three prongs remain foundational (Fien, 2006). The social element requires an understanding of social institutions and their role in change and development. An understanding of participatory systems with opportunities to express different opinions and to resolve differences is essential. Sensitivity to the boundaries of economic growth and its impact on society and the environment form the economic element. The environmental element requires an awareness of the impact of human decisions and activity upon resources. An awareness of the sensitivity of the physical surroundings is also necessary (Tilbury & Wortman, 2004).

While efforts to define education about the environment as a specific endeavour began during the 1960s and continued for the next two decades, it was the 1992 Earth Summit in Rio de Janeiro (United Nations Conference on Environment and Development, (UNCED) 1992a) which accelerated the awakening of millions of individuals around the world to the urgency of sustainable development. 'Agenda 21' (UNCED, 1992b; UNESCO, 1992) was one of several significant documents signed at the Earth Summit as many countries, including Australia, committed themselves to promoting sustainability in a variety of ways, including education (Fien & Tilbury, 2002; Huckle, 1991; Tilbury, Stevenson, Fien & Schreuder, 2002). Despite widespread recognition that education has a critical role in achieving sustainable development, only a small number of countries implemented a strategy for Education for Sustainable Development. In the hope of pressing this agenda forward, the United Nations declared the years 2005-2014 the

United Nations Decade of Education for Sustainable Development (Tilbury & Goldstein, 2003).

In Australia, research indicates that the ‘first wave’ focus remained on education *in* and *about* the environment rather than *for* the environment (Spork, 1992). A ‘second wave’ occurred after the Earth Summit, and Heck (2003) describes this as the point heralding the shift from environmental education towards education for sustainability. In 1997 the Australian national discussion paper ‘Today shapes tomorrow: Environmental education for a sustainable future’ was released (DEH, 1999). This paper provided a summary of the importance, nature and providers of environmental education in Australia, in addition to future priorities. It was followed in 2000 by a National Action Plan, entitled ‘Environmental education for a sustainable future’ (DEH, 2000). The Plan was intended to provide leadership and better coordination to the many sectors delivering environmental education and enhancing the national effort in support of Australia’s ecologically sustainable development.

In Western Australia, international and national expectations were acknowledged and an innovative government established the Sustainability Policy Unit to focus on sustainability as an integrated, whole-of-government approach (Government of WA, 2003). As a consequence an Environmental Education Strategy and Action Plan was released through the Department of Environment which views the context of environmental education more broadly than before, with a more holistic sustainability focus than previously and where environmental issues are to be considered along with

social and economic contexts (Government of WA, 2004). The Curriculum Framework in Western Australia, which determines the expected learning outcomes of all WA children through primary and secondary schooling, is oriented towards sustainability. Two of the core values of the Framework address a commitment to sustainability: “a commitment to regenerative and sustainable resource use;” and “social and civic responsibility, resulting in a commitment to exploring and promoting the common good and meeting individual needs in ways which do not infringe the rights of others” (Curriculum Council of WA, 1998, p. 16).

Currently, Western Australia has a range of locally initiated, school-based environmental programs with numerous educational kits available to teachers. These include Landcare: In Your Hands (Department of Agriculture, 1991), Salinity in the Classroom (Department of Agriculture, 2001) and the Swan River Action Kit (Swan River Trust, 2000). How extensively such materials are used by classroom teachers is dependent on school policy as well as teacher and student interest.

Sustainable Leadership

Leadership as a matter of influence, and leadership as a skill are two common perspectives which occur in definitions of leadership (Burns, 1978; Leithwood 1992, 1994). Similar perspectives are acknowledged in WA leadership research (Wildy & Loudon, 2000). Theories of transformational leadership have had considerable impact on studies of educational leadership (Bass & Avolio, 1993) with a concentration on the future and rudimentary focus on relationship building. A more recent concept is distributed leadership, a sophisticated web of interrelationships and connections where

leaders, including teacher leaders, are inspirational and able to support others to believe in what they can achieve themselves (Spillane, 2006; Spillane, Halverson & Diamond, 2004; Bennett, Wise & Woods, 2003). Such leadership theories form elements of the genealogy of sustainable leadership.

Sustainable leadership is a relatively new term which surfaced early in the 2000s among North American educational researchers (Fullan, 2005; Hargreaves & Fink, 2004, 2003). The term represents a shift to capture and merge contemporary leadership with the international pressure for sustainable development through education. Unlike earlier descriptions of leadership which emphasised personal characteristics and capacities, sustainable leadership is represented by those writers as a concept and a strategy with foundational principles. Seven foundational principles define sustainable leadership. They are based on the belief that educational leaders want to achieve goals that matter, inspire others to join them to attain those goals and create a lasting legacy. Several iterations of the principles are outlined in the literature published by Hargreaves and Fink (2006, 2005, 2003).

As a consequence of their North American longitudinal studies, Hargreaves and Fink (2003) outline three important aspects of sustainable leadership which are connected to the components of sustainable change. These aspects, also linked to the seven principles of sustainable leadership, are leading learning; distributed leadership; and succession planning. Studies linked to the 'Change over time' project support this perspective (Hargreaves & Goodson, 2006, 2004). Combined, these elements provide evidence of a

strong link with the three-pronged focus on social, economic and environmental factors underpinning the Brundtland Report (World Commission on Environment and Development (WCED), 1987).

Notwithstanding the passion and eloquence with which these North American authors write, much of the sentiment they outline is not new. A critique of this large body of research is offered by Levin (2006). While acknowledging the authors to be highly experienced researchers who are knowledgeable about their subject, Levin criticises their research for not indicating which conclusions are based on the researchers' own values, and which are based on demonstrated effective strategies. Nevertheless, the issues are clearly articulated and widely referenced in subsequent literature.

Methodology

Our study adopted a phenomenological approach. During visits to three Western Australian government secondary schools to interview teachers of education for sustainability we sought to understand what these teachers understood to be happening in each setting. The semi-structured interviews explored the successes achieved and trials faced by teachers of education for sustainability. We allocated pseudonyms to each school and each participant to ensure anonymity. Using writing strategies with which we were familiar, we generated narrative accounts from our interview data (Wildy & Pepper, 2005).

Narratives permit participants' stories and descriptions of experience to be honoured and given status (Clandinin & Connelly, 2000). Our narratives were returned to each

participant for feedback and approval of their use in the research. The narratives were analysed by first open coding then axial coding the data (Strauss & Corbin, 1990). Sorting the data in this fashion enabled a number of themes to be identified and documented. Further analysis across the cases identified four themes. Links between the themes and the education for sustainability and leadership literature were then explored.

Data and analysis

In this section we present three narrative accounts obtained from Colin, the teacher responsible for education for sustainability at River View College, one of the three schools in our study. River View College regularly achieves outstanding academic success. River View College has a population of almost 1500 students, enrolled across year groups from Year 8 to Year 12. Student numbers are relatively stable with a small decrease in the number of Year 11 and Year 12 students over the past five years. Three deputy principals support the principal and a teaching staff in excess of 100 teachers.

The three narratives capture the understanding of leading education for sustainability during interviews with Colin, a locally recognised science teacher. Although he is a long-term and committed sustainability educator, Colin maintains a low profile outside his school community. Two of his narratives describe implementing sustainability initiatives into River View College and the third describes collaboration with his teaching colleagues. In our study, Colin emerged as an exemplary leader of education for sustainability, in contrast to teachers and principals in other schools in the study.

BushRangers

Environmental education is a long-term passion for me. As a science teacher I capitalise on any opportunity to promote resource and environmental awareness among my students. Several years ago I learnt a school cadet program called Environmental BushRangers was to be piloted in selected schools. I spoke with the school principal who supported the government land management authority initiative. He agreed that I should coordinate the program. With assistance from another two teachers, I recruited 30 Year 8 students for our first intake of cadets. I accepted the offer of class time to coordinate the program and I continued this arrangement for 5 years. In the first year the program ran during the school day but from the second year we met weekly after school.

Prior to taking extended leave three years ago, I found a teacher willing to coordinate the program in my absence. On my return, I learnt the new principal removed the time allocation to coordinate BushRangers. I approached her to reinstate the coordination time, but had no success. A year later I applied further pressure and told her 'BushRangers cannot continue without planning time for the coordinator'. 'No' she said, 'It's not possible'. Fortunately, a few weeks later we were named finalists in the WA Youth Awards for the BushRangers program, and she changed her mind.

Cadets work with local residents' associations in bushland revegetation, creek-line restoration, water quality testing and animal rehabilitation. I encourage students to contribute items to our environmental noticeboard, assist with mulching the gardens, nurture native plants grown in the shade house, participate in bird surveys and promote recycling in the school.

The strong and structured administration of the program contributes to its success. I still work with the new coordinator, a teacher with long-term involvement and with the government land management authority representative. Parents support the group by attending our weekly meetings and joining us on camps and excursions. The local government environmental officer visits regularly and provides many contacts.

In this first narrative Colin, who is passionate about raising environmental awareness, describes his role in implementing the BushRangers program. Colin is forward thinking and addresses the challenge to find a replacement leader for the program.

Sustained focus

My goal to engage student interest and responsibility for their environment is long term. Several years ago I attempted to link environmental education with the newly formed BushRangers unit. I found these students disinterested and the group too small to make any impact. Instead, I looked towards expanding environmental awareness through the curriculum. I spoke about this possibility many times with the administrator responsible for timetabling. Despite evidence of increasing interest from students he saw no scope for capacity building and would not consider optional environmental education classes. He left the school last year.

On my return from summer holidays this year, I was delighted to see Environmental Education listed as an optional subject for Year 8 students. I designed the course to be as practical as possible and centred it on pollution, habitats and recycling. Students studied the effect of plants and animals, including humans, on the environment. We visited local habitats where we took measurements and observed wildlife. I registered the school with the state-wide AirWatch program to monitor air pollution along local highways and the school site. Students initially focused on their activities at school before deciding on the need for more rubbish bins and recycling bins. I encourage them to think about wise energy use at school and at home, undertake surveys to measure energy use at school and plan to focus on global warming.

Students are enthusiastic but their knowledge is weak. I encourage them to think critically and to take small steps towards individual responsibility. As part of each topic I ask them 'What can we do? How can we do it?' Students understand the meaning of sustainability and describe the advantages of walking or riding to school rather than driving by bus or car. They understand the significance of bird watching for Birds Australia.

The main challenge for me is finding time to write materials. However the enthusiasm of students and other teachers ensure my efforts are worthwhile. Next year I will receive funding for the program which will cover the costs of excursions. I also know three classes will be offered so, with the assistance of another committed teacher, environmental education will also be available to our Year 9 students.

Colin's initial efforts to link the successful Environmental BushRangers program to his newly developed curriculum unit are unsuccessful. Rather than accept this situation as failure, he is challenged to find a solution and claims increasing evidence of student interest in the program. Colin encourages his students to consider the thoughtful consumption of energy and individual responsibility.

Across the curriculum

My interest in the sustainable use of our resources is shared by other teachers. Together we work to change student and staff habits. Last year two like-minded teachers and I began our first attempt at cross-curricular lessons. Our strengths were complementary as English, Society and Environment and Science teachers working with the same group of Year 8 students. Together we planned several shared activities such as tree planting, worm farming, recycling and signage for local interest sites, all of which were linked to common student outcomes.

Our program was designed so that the Society and Environment teacher covered any historical aspects, the English teacher covered English expression and billboard presentation, and as Science teacher I covered the plants and animals involved. Other staff joined in through Home Economics and the school canteen. Students were rostered to collect scraps from the canteen for the worm farm and others to collect worm wastes. During Science, students measured the volume of waste and nutrients produced by the worm farm and during Society and Environment, they calculated the profit and loss involved in the sale of worm wastes. During English, students constructed the advertisements for our product.

We developed a roster for Clean Up Australia Day during the school day. During English students collected rubbish, in Society and Environment they sorted, then analysed and recycled rubbish and in Science students wrote reports about the exercise. As a team we work with Year 8 students to increase recycling of paper in the classrooms, offices and canteen. Similarly, students work together on Arbour Day, Threatened Species Day and World Environment Day.

I encourage staff to reduce their energy use and with assistance from Western Power we conducted an energy audit. As a result several offices and staffrooms have fewer fluorescent light tubes. I am seeking quotes to install a voltage reduction system to the library and fewer lights are left on when rooms are unused. Although some co-workers are unhappy to reduce the use of air-conditioners, senior staff agreed to adjust the settings for winter and summer. I also initiated a small staff action group to visit sustainable sites including a resource recovery venue, and to support students participating in sustainable environmental activities such as World Environmental Day, Weedbusters and Water Week.

In this third narrative, Colin describes collaboration with other teachers to develop cross-curricular lessons focusing on the three-pronged approach of education for sustainability. He provides opportunities for his students to understand the economic and social implications of their actions. Colin also works to guide other teachers towards individual responsibility for sustainable practices.

Analysis

Six themes were identified through a coding process by which phrases of similar or opposite meaning were clustered. For example, phrases referring to *a long-term passion*, *a desire to promote environmental awareness* and *an enthusiasm to promote sustainability interest* were clustered as ***displaying emotion***. Phrases indicating initiative, such as, *I recruited*, *I designed the course* and *I introduced*, were clustered together as ***looking forward***. A third group of phrases such as *a strong structure*, *through the curriculum* and *our program was designed to*, indicating a sense of strategy were called ***developing strategies***. Phrases such as *no scope for capacity building* and *to think critically* were clustered together to represent ***building resilience***. A fifth theme ***sharing responsibility*** emerged after clustering phrases such as, *I found a teacher* and *with the assistance of a teacher*. Across all River View College narratives another theme, ***interpreting sustainability***, was identified. In the next section these themes are elaborated.

displaying emotion

Colin guides education for sustainability with support from colleagues at River View College. As a teacher he is deeply committed to his work in education for sustainability. Phrases such as ‘environmental education is a long-term passion for me’ in *BushRangers* and ‘my goal to engage student interest and responsibility for their environment is long-term’ in *Sustained focus* offer evidence of Colin’s emotional commitment. In similar fashion the language he uses to explicate his desire to raise awareness of sustainability issues and to change the habits of, and exert influence over, others in the school indicates a high level of emotional involvement.

looking forward

Colin is proactive and focused on the future. In *BushRangers* he describes locating a replacement co-ordinator willing to step in while he is on leave and willing to assume responsibility into the future. Colin looks for opportunities to introduce curriculum change with an environmental and sustainability focus. He persists with his proactive stance to introduce a stand-alone environmental education unit after several attempts to introduce the course are stalled due to timetabling difficulties. Further evidence of taking initiative to focus on education for sustainability occurs in Colin's narrative *Across the curriculum*. Despite some resistance from other staff Colin seeks ways to work with them to consume less energy.

building resilience

Colin identifies barriers to modelling education for sustainability. He demonstrates resilience to overcome several of these including finding a replacement to run the BushRanger program and responding to changes made to the allocation of preparation time during his absence in *BushRangers*. He overcomes resistance from colleagues and some administration staff and finds time to write new curriculum materials which he describes as 'the main challenge' in *Sustained focus*. Colin makes no mention of giving up or regarding the challenges as insurmountable even when he perceives others failing to understand the potential for capacity building within the school community.

sharing responsibility

In *BushRangers* Colin seeks assistance to work with the first intake of cadets and to locate a replacement co-ordinator during his absence. He shares responsibility with other teachers to conduct the Environmental Education unit and strives to build capacity for

sustainable living among his students in *Sustained focus* and *Across the curriculum*.

Colin encourages colleagues to share responsibility to reduce energy use and provides opportunities for them to visit sustainable sites.

developing strategies

In focussing on education for sustainability, Colin recruits others by providing opportunities, encouragement and seeking their support. For example, in *BushRangers*, he describes seeking assistance from teachers to conduct the cadet program. He describes seeking further teacher assistance to conduct environmental education classes in *Sustained focus* and again to develop cross-curricular lessons in *Across the curriculum*. Colin is also strategic in involving other staff in sustainability programs. In *Across the curriculum*, for example, he describes involvement from the English, Home Economics and canteen staff. Colin also works to engage the support of principals new to the school and familiarise each with his initiatives. A key strategy recurring throughout Colin's narratives involves working with community members. He refers to support from the government land management authority representative, the BushRangers parent body and the local government environmental officer in *BushRangers*.

interpreting sustainability

Colin interprets sustainability with contemporary understanding of the phenomenon. Consistent throughout his narratives are examples where he educates for and models his interpretation of education for sustainability. In each of Colin's narratives, the environmental, social and economic aspects of sustainability are evident. For example, in *BushRangers* Colin describes the varied forms of environmental education he delivers with assistance from others, how he spreads information through social networks at

school and in the community, and his attention to the economics of valuing planning time to conduct the program. He is also mindful of the need for a replacement co-ordinator to ensure the program is sustainable. Throughout Colin's narratives his holistic approach to sustainability is evident where the concept is integrated across the curriculum.

Similar analysis was undertaken of the narratives generated from interviews with Colin's colleagues at River View College and with staff at the two other schools in the study. We conceptualise the themes we identified in the narrative as existing along a continuum where the theme may feature strongly in one narrative but may be weak or non-existent in another. By delving more deeply into these themes, acknowledging the variation within them and synthesising the information, we conceptualised four meta-themes: *understanding sustainability; imagining the future; building relationships; and taking action.*

Significantly, some participants' interpretation of sustainability is theoretical, while others model sustainability in their actions. Given the research aim was to capture understanding of leading education for sustainability we recognise *understanding sustainability* as the first meta-theme and crucial to further discussion. Similarly, introducing new programs, preparing for the future, influencing and developing others, and strengthening resolve when dealing with difficult situations, are examples of *imagining the future*. Across the cases we recognise displaying passion, believing in goals, working with others while encouraging them to participate, and developing networks as elements of *building relationships*. The fourth meta-theme *taking action*

involves proactive behaviour, overcoming challenges and solving problems. Table 1 below summarises this information and illustrates the links between the six themes identified within the cases and the four meta-themes conceptualised across the cases.

Table 1 Meta-themes across the cases

Themes	Examples	Meta themes
<i>interpreting sustainability</i>	knowing about and understanding sustainability, recognising three-pronged approach, more than environmental education	<i>understanding sustainability</i>
<i>looking forward</i>	looking towards the future, being creative, looking beyond the moment, future orientation	<i>imagining the future</i>
<i>building resilience</i>	strengthening others, strengthening resolve	
<i>displaying emotion</i>	displaying passion while working and relating to others, using interpersonal skills, sharing viewpoints	<i>building relationships</i>
<i>sharing responsibility</i>	delegating, networking, bringing others on board, inclusivity	
<i>developing strategies</i>	solving problems, overcoming challenges, planning actions, being strategic, considering options	<i>taking action</i>

Discussion

We interpret *understanding sustainability*, *imagining the future*, *building relationships*, and *taking action* as key concepts in re-conceptualising leading for sustainability.

understanding sustainability

The first key concept, *understanding sustainability*, is about ways of knowing. A deep understanding of sustainability is evident in Colin's actions as he seeks to engage others in education for sustainability. The three aspects of sustainability – the environmental, the social, and the economic – are consistently targeted in his initiatives. In striving for an holistic approach across student cohorts and curriculum areas, Colin's actions demonstrate a shift from the environmental focus typical of educators of the past (Fien & Tilbury, 2002; Heck, 2003). Rather than assume the terms 'environmental education' and 'education for sustainability' are synonymous, Colin recognises contemporary shifts in meaning. His awareness of the more complex understandings of education for sustainability is in keeping with the sentiments articulated by Fien (2001) and Tilbury and Wortman (2004). These writers perceive the role of education as transforming the ways people think about, know, and view their world. In understanding the significance of empowering individuals to assist them achieve sustainability goals, Colin recognises the need for, and takes responsibility to lead, education for sustainability at his school.

Understanding sustainability implies a deep knowledge of sustainability and is essential to leading education for sustainability. Knowledge and understanding of sustainability are underplayed in the educational and the sustainable leadership literature. Often the term 'sustainability' appears in documents because the authors are including the latest 'hot topic' or jargon. This view is embraced by Levin (2006) in his analogous discussion about wordsmiths developing mission and vision statements. In many instances where sustainability is discussed the concept is either not explained or its use is general and

ambiguous. For example, educational sustainability is “the capacity of a system to engage in the complexities of continuous improvement consistent with deep values of human purpose” (Fullan, 2005, p. ix). Missing from this definition is a clear statement clarifying the authors’ understanding of sustainability. In our view it is essential that a deep understanding of sustainability exists prior to attempting to lead for sustainability. This key concept supports our view that a surface understanding of leading for sustainability is not enough.

imagining the future

The second key concept, *imagining the future*, incorporates ways of thinking. The first element of *imagining the future* is a future orientation. Transformational leadership assumes participants are motivated partly because they share the leader’s vision for change (Leithwood, 1992, 1994). This conception of educational leadership clearly has a future orientation (Burns, 1978; Leithwood, 1994). Distributed leadership permits shared leadership responsibilities where trust is developed. It may also include teacher leadership where a teacher, such as Colin, may lead for the future from the centre rather than the top (Harris, 2004). Similar sentiments are developed by Hargreaves and Fink (2004, 2005) while articulating the *depth*, *length*, *breadth* and *justice* principles of their sustainable leadership model. Very strong links also exist between this key concept and the education for sustainability framework of Tilbury and Wortman (2004). Imagining the future or envisioning, the first component of the framework, requires thinking about, reflecting on and planning for the future. Similarly, Fien (2001, 2006) emphasises that to instigate social and environmental change envisioning is vital.

The second element of *imagining the future* is providing opportunities for personal growth. Transformational leadership in education is considered conducive to developing personal and professional potential while also considering the needs of others (Leithwood, 1992). Researchers such as Bennett et al. (2003) describe leaders engaged in distributed leadership as visibly supporting others to believe in their own capabilities and the opportunity for personal development. This educational leadership model also offers scope for capacity building within groups and across communities (Harris, 2004). Two principles – *depth* and *diversity* – conceptualised in the Hargreaves and Fink model of sustainable leadership (2006, 2005, 2004) are evident in distributed leadership. At River View College, Colin offers colleagues and students the opportunity to deepen their knowledge of sustainability issues and to join him in improving their skills within and outside of the school curricula. He involves others in varied and stimulating exercises to engage them in critical and creative thinking so they are exposed to new ways of perceiving, thinking and learning, which are goals of educating for sustainability (Tilbury and Wortman, 2004; DEH, 2005).

The third element of *imagining the future* is creating a culture of innovation. Transformational leadership assumes change is inherent and central to the organisation (Bass & Avolio, 1993). Similarly, according to Harris, (2004) leadership which is distributed has potential for building capacity for change. This is seen in practice when teachers such as Colin take the opportunity to initiate and lead change. For example, with support from others Colin has the resolve and persistence to ensure initiatives continue and spread. This behaviour is consistent with the *length* and *breadth* principles of

sustainable leadership proposed by Hargreaves and Fink (2006, 2005, 2004). It is also closely aligned with the transformative role for education articulated by Tilbury and Wortman (2004). Similar sentiments are the basis for the creative thinking strategy of the educating for sustainability document (DEH, 2005) and a key point of the IUCN Report (Tilbury et al., 2002).

building relationships

Building relationships, the third key concept, incorporates ways of relating. The first element of *building relationships* is strong interpersonal skills. Researchers (Leithwood 1992; Spillane et al., 2004) argue that transformational and distributed leadership require well-established connections among colleagues to lead and support each other. However, transformational leadership is dependent on a charismatic leader inspiring others (Bass & Avolio, 1993). Distributed leadership is dependent on a group of leaders who may occupy formal or informal leadership roles (Bennett et al., 2003). In both models strong interpersonal skills are necessary to build constructive and strong relationships. In adopting an inclusive and collaborative approach with colleagues who are receptive to his ideas Colin builds strong relationships at River View College. These skills are linked to the framework for engaging people in sustainability (Tilbury & Wortman, 2004) through the strategy of participation in decision making.

The second element of *building relationships* is strong networking and delegation skills. Where transformational leadership relies on an inspirational and charismatic leader, distributed leadership involves a group of leaders with strong teamwork skills who are prepared to share their expertise. Distributed leadership, according to Bennett et al.

(2003), involves seeing leadership as an outcome of the dynamics of interpersonal relationships and thrives, according to Spillane (2006), on interaction. Leaders who nurture networks among individuals and between communities, as Colin does at River View College, are sharing responsibility and developing partnerships. Several of the sustainable leadership principles articulated by Hargreaves and Fink (2005), for example *depth*, *length* and *breadth* are evident in Colin's skilful building of relationships. A critical component of implementing Agenda 21 at the local level is building partnerships in decision making between local community and government representatives (UNESCO, 1992, UNCED, 1992b).

taking action

Taking action, the fourth key concept, incorporates ways of doing. The first element of *taking action* is being strategic. Strategic planning precedes any attempt to influence others and implement change. It also involves an awareness of the whole situation rather than an individual or narrow perspective. In terms of distributed leadership, being strategic includes introducing initiatives across organisations to be modified for improvement in a specific context (Bennett et al., 2003). Leaders such as Colin recognise initiatives cannot be embedded or sustained by an individual working in isolation so they involve others in planning a strategy. Leading change to shift the focus from environmental education to education for sustainability requires well considered strategies. It is not by chance that the five core components of the framework for engaging people in education for sustainability are strategies (Tilbury & Wortman, 2004). Strategies are also identified in the document, *Educating for a Sustainable Future* (DEH,

2005), and are implied in the sustainable leadership research offered by Hargreaves and Fink (2006, 2005, 2004).

The second element of *taking action* is overcoming challenges. Individuals recognise problems and consider ways to overcome them. In transformational leadership for example, challenges must be overcome to support others to achieve goals and develop potential (Leithwood, 1992). Leaders such as Colin overcome challenges to the implementation of initiatives, for example, in recruiting replacement staff, convincing a school principal to re-instate the allocation of programming time and gaining administration support to implement new curriculum materials. These actions are typical of those described in studies indicating that teacher leadership tends towards advocacy (Harris, 2004). Challenges also exist to achieving sustainable leadership as articulated by Hargreaves and Fink (2004, 2003). At River View College, Colin identifies and mentors a successor to lead the BushRangers program and in so doing he leads learning. He focuses not only on delivering new knowledge to colleagues but he also offers them exposure to new approaches to sustainable living. These actions are in keeping with the goals of education for sustainability which aim to transform the way people see, think, learn and work (Tilbury & Wortman, 2004). Ways of overcoming challenges to educate for sustainability, such as developing an appropriate pedagogy and reforming policy, are also articulated by Fien (2001).

The third element of *taking action* is reflective behaviour. In both transformational and distributed leadership models people contribute initiatives from across an organisation. It

is therefore vital that initiatives which are implemented face review and that individual reflection occurs prior to initiatives being adapted and improved by others (Bennett et al., 2003). Leaders, such as Colin, reflect on their own behaviour and initiatives in order to refine, improve and embed them. Others are supported to gain understanding and reflection on current practices then encouraged so that deeper and critical thinking follows. These actions are in keeping with education for sustainability which aims to provide opportunities to reflect on individual behaviour and consider preferred futures (Tilbury & Wortman, 2004). Links to reflective behaviour also exist in the sustainable leadership framework articulated by Hargreaves and Fink (2005). These include, for example, the *justice* principle where leaders are encouraged to find ways to share knowledge and resources and the *resourceful* principle where leaders monitor the emotional state of themselves and others.

Findings

The elaboration of key concept *understanding sustainability* addresses the question How is education for sustainability conceptualised in WA secondary schools? The concept of education for sustainability, with its balance of environmental, social and economic elements, has existed for many years, but it is not widely embraced in the schools in our study. By and large, the participants, with the exception of Colin, focus on the environmental aspects of sustainability. In so doing, they focus *on* and *about* the environment, as described by Heck (2003) rather than the core values articulated by Fien (2006, 2001). While the participants in this study maintain the historical focus of environmental education, their use, and understanding, of sustainability, is superficial.

How education for sustainability is incorporated across the curriculum in Western Australian secondary schools was another research question for our study. In general, the participants are driven by their own passion to deliver the environmental elements of sustainability. Nevertheless, with the exception of Colin, this widespread emotional involvement from the participants did not extend to enthuse others. Interest in sustainability education remains concentrated in the Social Science and Science contexts just as Heck (2003) described for environmental education in the past. Even so, much of the sustainability curriculum that is implemented is fragmented, vulnerable to changing school conditions and could be considered serendipitous.

Our study's third research question was How is education for sustainability led in Western Australian secondary schools? Leadership does not seem evident across the settings of this study. A basic tenet of leadership agreed upon by many leadership researchers, such as Fullan (2005), Hargreaves and Fink (2004) and Wildy and Loudon (2000), is that leadership involves exercising influence over others. Much of the sustainability education in this study is delivered in isolated pockets, with limited collaboration among participants and their collegial networks. Across the study there is a general absence of long-term, coherent planning, and the systemic building of alliances. By and large, education for sustainability is delivered whimsically, without assembling resources and without articulating a clear vision for the future. Ironically again, this absence of explicit leadership does not auger well for the future of education for sustainability for the schools in this study.

What are the processes which facilitate education for sustainability to become embedded and sustained into Western Australian secondary schools? This was our fourth research question. We argue that *understanding sustainability* is fundamental to facilitating the routinisation of education for sustainability in Western Australian secondary schools. Without themselves having a deep understanding of the concept of sustainability, individuals will struggle to engage others with the concept. This understanding is supported by Fien (2006) who believes that the purpose underpinning the United Nations declaration of the Decade of Education for Sustainable Development is to build individual understanding of working for a sustainable future, responsibility for future generations and optimism for a sustainable future. However, it is not enough to understand the concept of sustainability. Those who would be leaders for sustainability need also to imagine the future. A future orientation, providing opportunities and a culture of innovation are the elements we conceptualise as shaping the key concept *imagining the future*. Such sentiments are consistent with the research reported by others such as Tilbury and Wortman (2004) and Hargreaves and Fink (2006). Strong interpersonal relationships together with strong networking and delegation skills are the elements we conceptualise as forming the key concept *building relationships*. Those who would lead for sustainability need also to build relationships. Research reported by Tilbury and Wortman (2004) and Spillane (2006) also supports this conclusion. Finally those who would lead for sustainability need to do more than understand sustainability, imagine the future, and build relationships. They need also to be action oriented. Being strategic, overcoming challenges and behaving reflectively are the elements we conceptualise as shaping the key concept *taking action*. Such concepts are also identified

in publications from Fien (2001) and Bennett et al. (2003). Nevertheless, if education for sustainability is to become embedded and sustained in Western Australian schools, local educators are obliged to deepen their understanding of these concepts. Being a leader for sustainability requires a combination of a deep knowledge of sustainability; the forward thinking and ability to imagine a different future; the interpersonal and networking skills to build strong relationships; and the energy and capability of taking action.

Conclusion

We set out to study how Education for Sustainability is conceptualised, led and embedded in a small sample of government secondary schools. Firstly, by and large, participants focus on the environmental aspects of sustainability due to a superficial understanding of the concept. Indeed in these school settings, much of the behaviour and resources purported to address Education for Sustainability remain focussed narrowly on environmental education. Our study suggests that schools do not distinguish between Environmental Education, with its narrow focus on the environment, and Education for Sustainability, with its broad focus on the integration of environment, economics and social justice.

Secondly, leading initiatives does not occur as a consequence of the actions of charismatic or passionate individuals alone, as in transformational leadership. While transformational leadership has a future orientation the concept has only a rudimentary focus on relationship building. Instead collaborations within and among committed teams as practised in the distributed leadership and sustainable leadership models face greater likelihood of success. Nevertheless, the distributed leadership focus is firmly on

relationship building but lacks a strong focus on the future (Burns, 1978; Leithwood, 1994; Bennett et al., 2003). Preliminary iterations of the sustainable leadership model articulated by Hargreaves and Fink (2003, 2004) proposed three aspects for sustainable leadership. The most recent iterations of the sustainable leadership model incorporate a number of principles and action principles (Hargreaves & Fink, 2004, 2005, 2006). While these are designed to clarify sustainable leadership, doubts are voiced about the usefulness of the model by other educational researchers (Knight, 2005; Levin, 2006). Despite the connections described between our research and the sustainable leadership model offered by the North American researchers, our research identifies both the complexity and the importance of *understanding sustainability* as crucial to leading for sustainability.

Thirdly, embedding change in secondary schools is acknowledged as difficult. Educators are not short of innovative ways to engage students in learning. Problems arise, however, in embedding or sustaining initiatives once they are implemented. This research into the three cases indicates that some educators have under-emphasised, or remain unaware of, the planning necessary for the sustainability of their initiatives. Many initiatives are adopted in an *ad hoc* manner and therefore doomed to collapse without being normalised into the school culture. Without a deep understanding of sustainability participants in our study are not in strong positions to embed and sustain educational change.

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