Education for Sustainable Development Report 2015

Contribution to Quality Education in Australian Schools

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Contents

Executive Summary ......................................................................................................... 1
  Introduction ................................................................................................................. 1
  The Project .................................................................................................................. 1
  Key Findings ................................................................................................................ 2
  Conclusion ................................................................................................................... 2
Introduction .................................................................................................................... 4
  Methodology ................................................................................................................... 4
Background ..................................................................................................................... 6
Findings ........................................................................................................................... 10
  1. Improving educational outcomes ......................................................................... 10
  2. Enriching school curriculum ............................................................................... 14
  3. Guiding students for future challenges ................................................................. 19
  4. Strengthening partnerships .................................................................................. 23
  5. Promoting innovation ......................................................................................... 31
Discussion ..................................................................................................................... 37
  Improving educational outcomes ............................................................................ 37
  Enriching school curriculum ................................................................................... 37
  Guiding for future challenges .................................................................................. 39
  Strengthening partnerships ...................................................................................... 40
  Promoting innovation ............................................................................................. 42
Conclusions ................................................................................................................... 43
References ..................................................................................................................... 45
Acknowledgements ........................................................................................................ 45
Executive Summary

Introduction
There are many definitions of sustainable development, and it can be better understood as an emerging vision, rather than a neatly defined concept or model. It is not a fixed notion, but rather a process of change in the relationships between social, economic, and natural systems and processes. Many schools and school systems that have embedded the concepts of Education for Sustainable Development (ESD) through their policies, practice and curricula have reported improvements in student academic achievement, attendance, student intellectual engagement and student/student, student/teacher relationships. At the same time, some school systems have been reluctant to include ESD in their programs fearing that this may dilute or interfere with their current program focus aimed narrowly at improving students' test scores. This project, conducted in Australia and in a number of countries overseas, is the initial phase of an ongoing project to explore the relationship between ESD and the pursuit of quality education. It is an attempt to better understand the potential synergy in merging these two goals and to realise the opportunities that exist to share common goals.

The Project
In April 2013, the UNESCO Chair in Reorienting Teacher Education invited 12 research teams from high-scoring PISA countries, including Australia, to consider conducting research related to ESD’s contribution to quality education. The research objectives were as follows:
1. To support the continuation of the development of ESD;
2. To collect data to better understand the potential of synergy between embedding the concepts of ESD throughout education policies, practice and curricula, student academic achievement and attendance, student intellectual engagement, and student/teacher relationships;
3. To prepare a meta-analysis and report for the UNESCO World Conference on ESD in Nagoya in November of 2014 and to provide research towards a second phase to support the continuation of the development of ESD on a global basis.
At the first meeting the UNESCO team agreed on research addressing five questions:
1. How can ESD update and improve educational purposes and outcomes?
2. How can ESD help to improve and enrich school curriculum development?
3. How can ESD guide students to have the knowledge, skills and values to care for and solve the sustainable development issues that will arise in their lifetime?
4. How can ESD help strengthen the partnerships between schools and other stakeholders, including the surrounding community?
5. How can ESD promote innovation in the teaching-learning conceptual framework?

To complete the project in Australia ten participants were interviewed. These participants were engaged in ESD work in schools, pre-service teaching in universities as educators or consultants, or worked in organisations that support schools systems. They were all experts in the field of ESD representing different positions and perspectives. They were interviewed using semi-structured in-depth interviews.
**Key Findings**

**Improving educational outcomes**
Educators expressed general beliefs about what this might mean and a little observational evidence that traditional educational outcomes are improved in the context of sustainability education. Educators were more forthcoming about the question of enriching the school curriculum, through relevance, collaboration, creative authenticity, problem solving, and action-oriented, transdisciplinary and transformative approaches. The categories of authentic real life curriculum, local place-based curriculum and transdisciplinary curriculum covered the range of ways they considered that sustainability education enhanced the curriculum.

**Guiding for future challenges**
Educators were less sure about the futures potential of ESD in complexity and systems thinking, but expressed a number of different ways that this could be understood. The main proviso for all educators was that the introduction of complexity and crisis scenarios needed to be age appropriate, and that students at all levels needed to be empowered to take action to make a difference in their worlds, however small that might be.

**Strengthening partnerships**
This yielded vigorous and comprehensive responses, beginning with a range of ideological and practical drivers for the formation of community partnerships. Participants gave numerous practical examples that revealed the pedagogical processes behind the partnership building potential of ESD, and the significant outcomes that could be gained by early childhood centres, schools and higher education institutions forming alliances beyond their boundaries—because we cannot do this work alone.

**Promoting innovation**
This generated the most surprising responses, but the reason for this becomes clear when promoting innovation is compared with the idea of enriching the curriculum. Promoting innovation in curriculum was understood by educators as involving changing the practices across educational systems, rather than as an addition to the curriculum implied by enrichment. They discussed the challenges of such change in the traditional approaches of most teachers, and the emphasis on standardised testing in current school systems. Innovation was seen to involve seeing curriculum through a new lens. They were able to provide some outstanding examples of curriculum innovation where whole school changes were made, and outcomes were of the kind that gives one hope for a better world.

**Conclusion**
Throughout the past decades reports have highlighted the significant limits to our progress for global sustainability. It has been recognised around the world that current economic, development and environmental trends are unsustainable, and that public awareness, formal and informal education programs and training are the most useful tools we have available to us to work towards change. However, education systems in Australia, particularly the national system, have been piecemeal in their ongoing commitment to ESD or EfS. This report provides some insights from educators of the complexities of engaging
ESD in formal education. These conversations need to be explored in order to realise the potential of ESD as a transformative curriculum supporting quality education that could contribute towards achieving a sustainable future planet.
Introduction
Many of the schools and school systems that have embedded the concepts of Education for Sustainable Development (ESD) throughout their policies, practice and curricula have reported an overall improvement of student attainment across a number of indicators. Many talk of improvements in student academic achievement, but they also mention improvement in other areas such as attendance, student intellectual engagement and student/student, student/teacher relationships. At the same time some school systems are reluctant to engage in the embedding of ESD in their programs, fearing that this may dilute, or interfere with, their focus on current programs aimed at improving students test scores. This project conducted in Australia, and in a number of countries overseas, is the initial phase of an ongoing project to explore the relationship between ESD and the pursuit of quality education. It is an attempt to better understand the potential synergy in merging these two goals, and to realise the opportunities that exist to share common goals. An international research project was conceived with 12 countries invited to participate in a collaborative study where qualitative comparisons would be made from interviews held with a range of participants addressing ESD in each country. The overarching research question being addressed by the 12 high-scoring PISA countries was Does ESD contribute to the attainment of quality education?

Methodology
In April 2013, the UNESCO Chair in Reorienting Teacher Education to Address Sustainability (located at York University in Toronto, Canada), in collaboration with the ESD Working Committee on ESD of the Chinese National Commission to UNESCO, invited 12 research teams from high-scoring PISA countries to consider conducting research related to ESD’s contribution to quality education. The objectives of the research were as follows:

1. To support the continuation of the development of ESD;
2. To collect data to better understand the potential of synergy between embedding the concepts of ESD throughout education policies, practice and curricula, student academic achievement and attendance, student intellectual engagement, and student teacher relationships;
3. To prepare a meta-analysis and report for the UNESCO World Conference on ESD in Nagoya in November of 2014, and to provide research towards a second phase to support the continuation of the development of ESD on a global basis.

From this meeting, the group agreed on research to be conducted across these 12 countries that would address five questions:

1. How can ESD update and improve educational purposes and outcomes?
   This question pertains to traditional perceptions of quality and better outcomes. Can ESD improve test scores and/or achieve other desired outcomes (e.g. improved student attendance and problem solving skills)?

2. How can ESD help to improve and enrich school curriculum development?
This question pertains to the relevance of current curricular content as well as student intellectual engagement with the content.

3. How can ESD guide students to have the knowledge, skills and values to care for and solve the sustainable development issues that will arise in their lifetime?
   This question pertains to educating for an uncertain future as well as dealing with the complexity of future challenges to global sustainability.

4. How can ESD help strengthen the partnerships between schools and other stakeholders, including the surrounding community?
   This question pertains to the usefulness of the school to its local community, and vice versa.

5. How can ESD promote innovation in the teaching-learning conceptual framework?
   This question pertains to improving our understanding of how teachers learn to teach throughout their careers and how to engage learners to master the curricula.

The research conducted in Australia involved exploring the value of ESD as perceived by educators and stakeholders working with schools in a variety of contexts. To complete the project ten participants from around Australia were interviewed. These participants were engaged in ESD work in schools, pre-service teaching in universities as educators or consultants, or worked in organisations that support schools systems. The participants included two teacher educators from university settings (one primary and one early childhood); early childhood and primary educators working in child care or kindergarten settings (community and private) and schools (including a private school and a Catholic school); two ESD consultants who worked with schools developing resource materials and providing professional development to educators; a government representative whose role was to comment on national curriculum policies and programs; and a representative on the National Environmental Education Council. The box below provides an overview of the ten participants.

<table>
<thead>
<tr>
<th>Australian Research Participants</th>
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<tr>
<td>Participant 1 Julie: ESD Community Early Childhood Educator</td>
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<td>Participant 2 Sandra: ESD Education Consultant</td>
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<td>Participant 3 Sue: ESD Early Childhood Educator</td>
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<td>Participant 4 Jasmine: ESD Education Consultant</td>
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<td>Participant 5 Mark: ESD NSW Government and Representative National Curriculum Committees</td>
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<td>Participant 6 Grahame: Member National Council for Environmental Education</td>
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<td>Participant 7 Amanda: NSW Primary Teacher Catholic School System</td>
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<td>Participant 8 Clarice: VIC Primary Teacher Independent School System</td>
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<td>Participant 9 Peter: ESD Teacher Educator University (Primary)</td>
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<td>Participant 10 Kumara: ESD Teacher Educator University (Early Childhood)</td>
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Box 1: List of Research Participants
The research was conducted using a semi-structured interview process. Each individual was provided with the five questions beforehand and then interviewed by Skype or telephone using a conversational style of open ended interviewing. The interviews were taped and then transcribed. Beyond small editorial changes the transcriptions were completed verbatim. The participants all agreed to their names being used as part of the ethical considerations, and were informed that the data from the interview would be included in a national report that would be available for distribution by UNESCO.

Background

There are many definitions of sustainable development, and it can be better understood as an emerging vision rather than a neatly defined concept or model. It is not a fixed notion, but rather a process of change in the relationships between social, economic, and natural systems and processes. A sustainability paradigm rejects the primacy of any one of these areas, and seeks the opportunity for a shared view where quality of life for all the world’s inhabitants (human and non human) is not compromised by, or for, another. The vision of sustainable development emerged in the late 1980s and gained worldwide support with the publication of Our Common Future by the World Commission for Environment and Development (WCED) in 1987. The Commission defined sustainable development as development that meets the needs of the current generation without compromising the ability to meet the needs of future generations (WCED 1987). This sentiment was carried forward at the Earth Summit in Rio de Janeiro in 1992, where over 170 countries adopted Agenda 21 and the Rio declaration on Environment and Development. After many conferences and reviews on the potential to fulfil the goals of the declaration over a ten-year period, in 2002 the World Summit on Sustainable Development (WSSD) in Johannesburg created the platform to fully develop a paradigm of sustainable development at the highest political level. The Decade of Education for Sustainable Development (DESD 2005-2014) provided an international framework for cooperation and consolidation of ESD across the globe.

The connection between the role of children and education with sustainable development has been formally articulated in a number of global declarations and documents emerging from intergovernmental summits and meetings through the past 20 years. Historically, some of the most significant documents for stimulating discussions on children, education and sustainable development include The Plan for Action that resulted from the World Summit for Children, and the Rio Declaration and action plan of Agenda 21—both endorsed at the Earth Summit in Rio de Janeiro in 1992. Principle 21 of the Rio Declaration clearly reinforced the role of youth in sustainable development and started a pathway forward to consider how young people could be active partners through education in sustainability:

Principle 21. The creativity, ideals and courage of the youth of the world should be mobilised to forge a global partnership in order to achieve sustainable development and ensure a better future for all (UNESCO 1992).

ESD, like sustainable development itself, is a dynamic concept with many dimensions and many interpretations. While some would argue that there is a need for a global definition
Education at all levels is a key to sustainable development. Educating people for sustainable development means not just adding environmental protection to the curriculum, but also promoting a balance among economic goals, social needs and ecological responsibility. Education should provide students with the skills, perspectives, values, and knowledge to live sustainably in their communities. It should be interdisciplinary, integrating concepts and analytical tools from a variety of disciplines. Few successful working models of education programmes for sustainable development currently exist (UNESCO 2002, cited McKeown 2002 pp 18-19).

In Australia, for example, the shift to ESD terminology has been somewhat slow and contentious. For that reason much of what is reported at a national level as ESD is also reported as Environmental Education (EE) or Education for Sustainability (EfS), interchangeably. While there are many overlaps in their purpose, ESD (and EfS) is much broader in its intent and curriculum scope than EE. Australia has adopted Education for Sustainability (EfS) rather than the UN terminology of ESD. At the beginning of the Decade of Education for Sustainable Development the Australian Government released the *Educating for a Sustainable Future framework*, where it defined the concept of ESD this way:

Environmental education for sustainability is a concept encompassing a vision of education that seeks to empower people of all ages to assume responsibility for creating a sustainable future. For many years environmental education has sought to develop knowledge about the environment and to establish an ethic of caring towards the natural world. It has also grown over time to recognise the need to engage with many different interests in society in order to address environmental issues. Environmental education for sustainability acknowledges what has always been true, ‘that how people perceive and interact with their environment (their worldviews) cannot be separated from the society and the culture they live in’. Importantly, recognition of the many values— natural and cultural—which the environment may encompass now frames the contemporary Australian understanding of the environment, including the protection of places of National Heritage Significance, based on their natural, cultural and Indigenous values. It is timely that this statement, Educating for a Sustainable Future, is released during the first year of the United Nations Decade of
While there is no definitive meaning of ESD there are a number of key characteristics of what ESD supports as a program of education. ESD is transdisciplinary. “[T]ransdisciplinarity involves going between, across, and beyond different disciplines” (UNESCO 2004, p. 1). ESD is concerned with disciplines that improve our understanding of ecology but not to the detriment of engaging with studies of human culture, social sciences, geography and the humanities. It emphasises aspects of learning that enhance the transition to sustainability including futures education; citizenship education; education for a culture of peace; gender equality and respect for human rights; health education; population and sustainable consumption. It is about dealing with real world problems in real world settings (UNESCO 2004) with a focus on lifelong learning:

This concept of learning requires that education not only be as broad as life itself, but that it continues throughout the full span of life. Lifelong learning, including adult and community education, appropriate technical and vocational education, higher education and teacher education are all vital ingredients for capacity building for a sustainable future. ESD aims to empower everyone, young and old, to make decisions and act in culturally appropriate and locally relevant ways to redress the problems that threaten our common future (UNESCO 2004, p. 2).

ESD supports a pedagogy of inquiry that develops the skills needed for individuals and groups to engage successfully in a sustainable society, including critical and creative thinking; oral, written, graphic and digital communication; collaboration and cooperation; conflict management; decision-making, problem-solving and planning; using appropriate technology, media and information communication technologies (ICT’s); civic participation and action; and evaluation and reflection. There are a number of priority areas that need to be addressed in the global call for ESD. Experience of the last decade has shown the usefulness of tailoring education to the needs of the poor, especially focused on women and girls. Investments in women’s and girls’ education translate directly into better nutrition for the whole family, better health care, declining fertility, poverty reduction, and better overall economic performance. This adds up to the potential to make considerable on-the-ground actions for change. Teacher education is also a high priority in ESD since school teachers and other community educators are in a significant position to serve as agents of change in support of sustainable development. Efforts have been made to develop international guidelines for reorienting teacher education, however, the frontiers between academic disciplines remain staunchly defended by professional bodies, resource allocation systems, career structures, and criteria for promotion and advancement. Non-formal or community education, including public information, is also a key instrument for promoting sustainable development and can complement formal education, which has a history of being slow to change.
Throughout the past decades, as reports highlight the significant limits to our progress for global sustainability, education has continued to be espoused as an essential tool for achieving the goals of sustainable development. It has been recognised around the world that current economic, developmental and environmental trends are unsustainable, and that public awareness, formal and informal education programs and training are the most useful tools we have available to us to work towards change. However, education systems in Australia, particularly the national system, have been very piecemeal in their ongoing commitment to ESD or EfS. Some of the most significant advances throughout the past ten years included the Australian Curriculum, Assessment and Reporting Authority (ACARA) introducing sustainability as one of three cross-curriculum priorities to be incorporated into the Australian Curriculum. To this end, sustainability was to be incorporated across all learning areas, with particular attention being given to the development of knowledge, skills and understanding relating to sustainable patterns of living, how humans interact with the environment, and the importance of designing and acting for sustainable futures. ACARA makes EfS explicit in the Australian Curriculum by using key Organising Ideas as a guide for the integration of sustainability into all learning areas. ACARA defines EfS this way:

Sustainability addresses the ongoing capacity of Earth to maintain all life. Sustainable patterns of living meet the needs of the present without compromising the ability of future generations to meet their needs. Actions to improve sustainability are both individual and collective endeavours shared across local and global communities. They necessitate a renewed and balanced approach to the way humans interact with each other and the environment. Education for sustainability develops the knowledge, skills, values and world views necessary for people to act in ways that contribute to more sustainable patterns of living. It enables individuals and communities to reflect on ways of interpreting and engaging with the world. Sustainability education is futures-oriented, focusing on protecting environments and creating a more ecologically and socially just world through informed action. Actions that support more sustainable patterns of living require consideration of environmental, social, cultural and economic systems and their interdependence.

Unfortunately, with a recent change in government these plans to include sustainability as a cross curriculum area have been diluted, and it is unsure if they will continue to exist in the future. The most significant report to emerge from the government in recent times was the 2012 Australia Education for Sustainability Alliance (AEFSA) commission to look at ways to advance the implementation of EfS in the Australian curriculum. The EfS Project, as it was known, sought to “identify, verify, recommend and facilitate ways to improve the integration of EfS into learning as a cross-curriculum priority across all subject areas under the Australian Curriculum” (AEFSA 2014, p 10). The research found that 92% of the teachers interviewed across Australia thought that sustainability was important, of value to students and should be integrated into the curriculum. 84% specifically stated that they considered it personally important to integrate sustainability into their own teaching.
practices, and 74% believed that students would benefit from being taught about the concepts, knowledge, skills and values of sustainability (AEFSA 2014). Although valuing its importance, 80% of teachers said that they lacked a comprehensive understanding of what EfS was and how to include it in the curriculum. Of the 20% who felt that they had some understanding, half of them said that they didn't know how to teach it. Of those who did teach it, 9% felt that they didn't have enough knowledge to be able to integrate it fully into their classroom, 7% said that they integrated it to a very limited degree, and only 2% of all the teachers interviewed engaged with EfS teaching practices in their classroom. Overall, the first section of the national research study on EfS revealed that less than one in ten Australian teachers were currently teaching EfS, and those who did felt unprepared and did not know what was required of them (AEFSA 2014). In order to build on the findings of the AEFSA report three key contributors to the National EfS project were invited to participate in our study and have at times made reference to this earlier work in regard to our questions around the role of ESD in quality education.

Findings
The key points outlined by participants from the research interviews have been organised around the main themes of the five questions. Drawing from the transcripts of responses from each of the ten participants, the reporting illustrates the contrasting and similar perspectives derived from the interviews. The organising themes are as follows: Improving educational outcomes; Enriching school curriculum; Guiding students for future challenges; Strengthening partnerships; Promoting innovation. The implications of the findings for ESD are discussed in the concluding section.

1. Improving educational outcomes
How can ESD update and improve educational purposes and outcomes?
This question pertains to traditional perceptions of quality and better outcomes. Can ESD improve test scores and/or achieve other desired outcomes (e.g. improved student attendance and problem solving skills)?

I’m coming from an early childhood perspective so test scores aren’t really relevant. But I—from my experience - Yes, I think it does improve desired outcomes because of the principles of education for sustainability, including critical thinking, problem solving, project approach, I suppose. These have resulted in much better outcomes for children and for the educators. So there’s a big emphasis on collaboration, which is one of the principles of education for sustainability—working together. I think that early childhood education is probably more in line with education for sustainability than the school system is, because of the contemporary approach to early childhood education. So it’s probably not as bigger jump as it is for the school system. — Julie

Well, first of all, you’d be aware of the difference between education for sustainable development and education for sustainability, right? What I focus on is education for sustainability—so, as distinct from for sustainable development. So, with education for sustainability that encompasses a personal perspective, which I call personal sustainability. Now I think potentially ESD and EfS can play a big role in improving educational purposes
and outcomes, but it doesn’t seem to be happening at the moment in most Australian schools that I’ve had experience with. So the way that it’s— The way that it can be potentially used in schools, is to make the students and the teachers initially more aware of the potential for sustainability to be an all-encompassing concept or focus for the subjects that they teach. So that it can be used to improve literacy and numeracy and problem-solving and critical thinking, and all those sorts of skills that are going to be important for students in the 21st Century. But in my experience, even though the potential is there, it doesn’t seem to be having a big focus. It’s not a big focus in schools at the moment. I don’t think that— Looking at the second part of the question, I don’t think ESD or EfS can particularly improve test scores and/or achieve, improve student attendance, and so on. I think the key here is that there’s the potential but it’s not really happening, in my experience. – Sandra

I’m a school employee with the role of sustainability coordinator, so my role is to get the whole school to have ESD. And so, that means that it’s really valued in the school executive that this is a way that we should be going. So that means that it sort of embeds down into cultural practice within the school of sustainability practices. And so often— So the question there is perceptions of quality and better outcomes. So, like, it really— It’s identified at a really high level that it should happen. It’s not really about test scores here, so it’s not about academic. But I do know that our boys say—that have been investigating local environment issues or sustainability as the triple bottom line of looking at ecology, society, and economy— Our boys are just really well grounded in real world, and are then encouraged to go out and be change agents in the world. So that ESD is sort of the whole school ethos of going out and being men for others. So that ESD is sort of the whole school ethos of going out and being men for others. So I just think it is really, really important. But it’s not really— Like, you couldn’t quite say it’s why test scores are high, so it’s probably not being sort of divvied out. Now, some other desired outcomes are around the school wanting to be known that it is a sustainable school, so there is that marketing aspect— Like, its how the school wants to be sort of seen in the local community—that it is a sustainable school. – Sue

I think—so— I’ve been doing this work for 14 years and I came to it with a community development focus, and I’ve been trained as an environmental studies person. So I would say that I have never done what people might call traditional. I’ve always taken a holistic approach. So I absolutely and utterly think that’s how you have to operate. – Jasmine

If we look at that first particular part—how can ESD update, improve educational purpose and outcomes? If we look at that from a student’s perspective, the answer is yes, of course it can. But the two—I think—determining factors relating to that would be the professional—sorry—the capacity of the teachers to create coherent integrated, well-structured learning experiences for young people, and then how might those experiences actually target things like their literacy, their numeracy, their science understanding, their capacity for problem solving, and all of that kind of stuff. So it is— The answer of course is yes, but it's very dependent on those two key factors. Now if we take the first one, sustainability, environmental education, ESD are generally not part of teacher training programs at the tertiary level. So the majority of our teachers walk into our schools and our institutions
that—and they may be very keen to teach, using environmental and sustainably examples, or contexts. But high effective teaching and learning using ESD, environmental ed, has not been modelled to them. And they're—perhaps the lack of—And sometimes they're not able to distinguish between high quality resources, and perhaps lower quality resources. So that's one of the first things. So there is a professional capacity of teachers that is critical to—that is critical to the question that—how can it improve outcomes? The second one is, whilst we talk about the best way to teach ESD is through an integrated approach, one of the things I see perhaps a little bit lacking in the development of teaching and learning programs and syllabus and all that sort of stuff for teachers is that, if they're going to identify where each of their subject areas—where each of those sort of cross curriculum areas, like problem solving, they need to actually—I suppose—construct a program, disintegrate it, tear it apart; have all of those learning outcomes and those identified, and then be able to kind of reconstruct it coherently. So I think there is— And there's some significant challenges facing our teaching staff to do both of those things: number one to have the background knowledge, the confidence, the capacity to teach it, and then having the skills to do high quality integrated sustainability learning in our schools. – Mark

Okay, does it improve education outcomes? Student outcomes? Look, the answer to that question is yes, but the hard data is almost non-existent. There are some programs that are around have done that—particularly in the areas of—in school attendance. So Indigenous communities—There's a few, not peer reviewed papers, to my knowledge, but often conference papers and so on, where there's been some outputs discussed in those around improving school attendance, improvement in school wellbeing, problem solving skills. Some of the environment education centres in New South Wales have done some work in that area, but probably not of any great substance in terms of either peer review, journal articles, because they tend not to do those. Or even in terms of quantifying the impact of that. The best example of a program that's done that, that I've seen, is a program coming out of the Northern Territory. I can shoot you through the details. I should have looked them up, but it was reported on it, the last New South Wales environment of education association conference, where it was with young Indigenous people. And it was a certificate II—I think—it was a program that was run out of a community centre in terms of a program getting young Indigenous kids out into the landscape and doing environmental work. And their whole attitude to learning improved. There was some quantifiable data in there around attendance, around completion of their certificate II. And I think there's other examples of that being run in TAFE and other communities. But the evidence is really hard to find because people tend to do the program, maybe talk a bit at a conference, maybe not even that, and no one writes it up in any sort of comprehensive or peer review fashion. – Grahame

I think education for sustainable, or anything in that area, can really bring teaching into the modern day and help us have a better perspective on what's actually going on. I think it can just make things a bit more real world, and give students a better perspective on what is going on and how they can look at the world in a different way. Without having it included in our education system, I think it's blocking off a part of the real world and not really telling it how it is. I think teachers need to integrate education for sustainability into their
teaching programs so that they can improve student outcomes in academic respects, and also in terms of giving them better perspectives on their real world learning. And how to integrate that through it—You need to be innovative, but I think it’s very doable. I’ve been looking at education for sustainability and how it can improve student outcomes across—across everything, by taking kids outside for half and whole day blocks for—for many, many years. And then bringing them back into the classroom and working on their learning in the classroom. I find them actually striving to write the work, to do better projects, to make up better oral presentations. Whatever it is, I find that their learning is more enriched as—as a result of them actually having an interest in a topic. They feel informed. They’ve got the background knowledge to go on. I think that education for sustainability, and the motivation to do that, actually ticks off a lot of the boxes of the quality learning and teaching frameworks that exist in various formats within our schooling system. And if you went through those in terms of those—the quality teaching frameworks—you’d actually find that they don’t take away from the teaching they actually add so much more to it. – Amanda

In my own context, I’m in a situation where we are really working towards education for sustainable development. But that’s just with one year level. And so definitely in what we do at—In our one year level I have seen test scores rise and student attendance improve, and children who are normally on the radar—they go off the radar, as a rule, not all. But as a school—my school experience—I think that the perceptions—the traditional perceptions are very strong, the strong beliefs that underlie them. And they’re quite hard to breakdown, so it needs to become holistic. It’s very separate; educational for sustainable development. So if I said that to someone at school they would probably think environmental science immediately. That aside, I am seeing students that I worked with when they were in the primary part of our school—now they’re in Year 11 and 12—and the ones who were especially interested in sustainability have continued to follow their interest. And every year those particular students with that drive and passion are taking on VCE (Victorian Certificate Education) studies in Environmental Science. And they’re also coming out with perfect scores, a lot of them—the ones that I’ve taught that have. It’s quite interesting to see them go through, because they don’t let go of their interest in the area or their passion for it, and it ends up really influencing them up in their VCE years. I think it has the potential to improve educational outcomes because it empowers children, and when a child feels empowered their confidence levels go up and all sorts of good things happen. – Clarice

I’m not 100% sure about improving test scores; I think it probably can. I think that’s the next bridge that we would be focussing on. As far as it’s improving educational purposes and outcomes, I certainly believe that it is really well placed to do that. When you look at the new national curriculum it’s strongly aligned at the curriculum priorities. It’s strongly aligned to the skills and to the values that the students are meant to be developing as responsible citizens. I think it gives students an opportunity to get outside of their traditional classroom context using numeracy and literacy and different authentic context. And I think that’s really valuable. And I think that will have—go some way to improving student—whether it be student attendance—you know—In a sort of traditional city school I’m sure
attendance is probably not the major issue but, however, it certainly would improve their interest and also their problem solving skills around that. – Peter

There’s plenty of research to show that education for sustainable development, in its various forms, can improve outcomes for students when it comes to test scores, when it comes to social skills, when it comes to health outcomes, etc. I have no doubt that it can do that. … The areas in which I’ve worked mostly is early childhood in kindergarten. Education for sustainable development for me has been implemented through creative means, through storytelling, through the arts, through time spent in the natural world. So I think it depends to some extent on what you think—well, how you conceptualise education for sustainable development. But in the ways in which I’ve done— So it’s been used as an everyday educational pedagogical tool for improving social dynamics in the classrooms, for introducing and elaborating on concepts—whether they be special relationships, whether they be mathematical patterns, whether they be colour relationships. There are a whole range of ways in which you can use education for sustainable development to that end. Natural science understandings, chemistry when it comes to composting, worm farms, etc. I think you need to look at what’s actually happening in the natural world—model for many, many different educational outcomes there that can be used. – Kumara

2. Enriching school curriculum

*How can ESD help to improve and enrich school curriculum development?*

*This question pertains to the relevance of current curricular content as well as student intellectual engagement with the content.*

I think with education for sustainability you tend to build on where people are at, and then follow their interest, and that’s very much how early childhood education works as well. And I think using a collaborative approach to learning, and then following that approach, engages children in much more critical reflection and problem solving, and sharing their learning, which is—which definitely enriches them and their engagement because the learning is derived by their interest. It could be something as simple as exploring waste with children and where waste goes. I know of a service that’s done something where they’ve planted. They’ve had a vegetable garden, but they have decided to plant rubbish that they have sorted. So a piece of plastic wrapper from someone’s lunch, a little piece of banana skin, a tie from a bread bag, and milk lid, and they’ve labelled those and dated them, and it’s like they’ve had their own little sample of landfill. And then they’ve watered it and cared for it just as they would in their vegetable garden, and then come back and had a look to see what has changed about those materials that they planted. And so then they can explore what those things are made of and where they’ve come from. And so that gets them investigating life cycles of products, as well as learning about the waste stream and those things. So it builds, builds and builds depending on their interest and where they’d like to go. – Julie

I think it [ESD] can enrich the school curriculum greatly and improve it. And the reason I say that is that all the studies have shown that students really like learning about things that are relevant and interesting. For example, if you look at the Stephanie Alexander kitchen
garden project, students love getting out of the classroom, fiddling around in the dirt, growing things. And, for example, I just notice with my granddaughters that they just got some little seeds the other day and they’re very excited that the seeds are growing and they love harvesting—things like that. So I think ESD has a great capacity there to enrich the school curriculum. Now in terms of education for sustainable development, which I understand as the process of reaching sustainability, I actually ran a workshop at a youth summit—youth eco summit—two years ago, with some images about—with sustainable development issues. So, for example, there was an example of a young child working in an emerald mine in Chile—that sort of thing. And what I found was that the students were intensely interested in what was happening in all these different parts of the world, particularly for children their age. But there wasn’t so much engagement from the teachers. So I think there is an inherent interest in students to learn about sustainability and all the concepts, but I don’t think that that is necessarily translated to the teachers because they’ve come through a system where they’re pretty much content based for their subjects. Whereas sustainability is an all-encompassing concept. The other issue is that most of the teachers that I deal with—would be over 90%—think that ESD or EfS is totally about environmental issues. So there is a big—a huge—lack of understanding. And these are generally with teachers that are interested in sustainability. There is a huge lack of understanding about the holistic nature of sustainability, and also the importance for students to make those connections between different subject areas. I do think that sustainability issues are very relevant; they can be made relevant to every subject area. That’s basically what I run my workshops on. And there’s no doubt about it that students enjoy learning about all the different aspects of sustainability, particularly if they get to go outside and actually engage with what’s happening locally. – Sandra

So I would say that it’s quite interesting that when I asked heads of faculty what units have a sustainability focus, they can all rattle off where they have units that have a focus on—Even languages use environmental issues for their language work. Our art have a major focus on getting outside and using the natural landscape. And then geography, you know we have geography just—it’s embedded throughout—getting that whole triple bottom line. But even English—So, getting text—You know, the texts that they use. So, curriculum development—So for us, in our school, there’s curriculum and co-curriculum. And co-curriculum sort of sits beside curriculum and the environment group. And the environment co-curricula is one of—like—it’s valued like all the other sport, and debating, and all the other co-curricula. So it’s sort of expected that boys would participate in the environmental calendar of the school and be part of the—sort of the—all the environmental activities that are put on—so—like walk to school, and mobile muster, and—but more than that. So, the canteen took all the drink bottles out of the canteen and not one boy complained—So it was sort of like that—Yep, this is what my school does. It has practices that want to lead to becoming a sustainable school. So, like—That has to come out of a teaching practice, as well, or like a curriculum. So, for co-curriculum to work, curriculum has to be there supporting it. But when you talk about ESD it’s also about that social—that giving a social justice—and really having issues where students sort of bring in more—you know—looking more holistic and systematic thinking—and participatory—and all those other principles of
ESD. And I think we’re probably—as a school—don’t do it systematically, but it’s there across the triple bottom line. – Sue

I’m running a project with bilingual educators to get them to understand more deeply about the projects that we’re working on in the Cooks River. And they will then go and work with community organisations, with people who don’t speak English at home. And so it’s a train the trainer type program. The methodology that we’re using is taking a methodology that they typically use, and which is workshops where the community organisations have been to a fieldtrip. So we’re wanting to get people into the local environment and we want the participants of that project to talk to other people and share what they’ve learnt. We are aware that what we’re trying to share is quite technical so we’re using art—artistic elements—in order to have a way of reflecting back the learning the people have through their artistic output, and not just verbally. So we’re using multiple learning mechanisms to deal with a multidimensional project. – Jasmine

I think there's one key word in that question, and I would pull out the word relevance. There is—in every school and in every teaching and learning interaction between a teacher and younger people—there is always an environmental context that a teacher could leverage or use to create a very close immediate authentic and highly relevant experience for young people. So I think a rich, exciting, engaging relevant school curriculum—the answer to that is choosing contexts, choosing themes, choosing examples, problems for kids to solve that are local, that are real, that are accessible. So young people, they become actually part of—almost like the problem solving team. They may actually be living part of the issue or part of the problem. It may be an issue in their local environment, it may be an issue with the way they manage their resources actually in their own school. It may be how they view the future. They are things where—or their context that must involve—that must involve the person. In terms of, I suppose, intellectual engagement, what we've seen is that if young people see that the topic or the theme is relevant—and they've actually—they've got some points of entry and points of contact with that theme or problem. They demonstrate quite strong commitment to solving a problem. And once that commitment is, I suppose, established and developed they look for the tools that will help them do that. So whether it’s a piece of factual information, or a piece of knowledge they don't have, or whether it's a skill or process that they need to develop or acquire or master before they can actually solve the problem—that’s where I see that intellectual engagement actually can—can really step up. We've had, in New South Wales, running a program called climate clever energy savers. And it's essentially a student action learning program where kids are given the opportunity to look at energy efficiency and energy use issues in their school. And they are in charge—the young people are in charge of investigating the issue and developing solutions. Now it's that closeness of—I am developing a solution to energy use and efficiency in my classroom, or in my school. And that very close connection means that they're quite committed to getting a result. They're quite committed to making sure that they can actually do something and achieve something. The nice little carrot we've attached to that particular program is that the young people can then apply for a little bit of funding to actually make their projects, make them happen, make them real. So we've seen young people investigate the issue of energy use from lighting in their schools and the diversity of solutions that
they’ve come up with—anything from timers on the lights to more energy efficient lighting, fluorescent tubes to skylights being installed—and then being able to say “Okay, well how much is this solution going to cost? Who do we need to talk to, to put this solution in place?” and to see them run through that particularly sequence of problem solving, communication with the people who are going to help them out, the supervision of the work that has to happen, and then the reporting and celebrating. It hooks them, and they persist or they stay with the task until the completion. And that to me is—it brings into that notion of extended engagement. They’ve picked up a whole range of knowledge and skills related to the various disciplines, like literacy and numeracy or science and so on, but they’ve also picked up a whole range of other things that might be related to those cross curriculum stuff, like problem solving, like communication, like leadership skills. – Mark

Across Australia there's been a fairly major project now mostly unfunded in most jurisdictions towards sustainable schools. And sustainable schools has two components to it. One was around school operational issues, waste and water and those sort of energies that's on the school management, and the other was particularly through curriculum development. And this preceded the National Australian Curriculum work. And I mean there’s—through that program there's huge amounts of … the fact that working in sustainability … curriculum development across a whole range of curriculum areas, and … areas, because what happened—what happened, and it's been happening maybe for 15 years in schools, is that sustainability has been taught across curriculum in the sense that there’ll be various schools, and various ways of presenting the area, some … environment in New South Wales terms, some will be in English or literature, some will be in maths, and it depends on the schools decision about what curriculum areas ought to be enriched by sustainability and what the capacity is to do—so about how that works now. I guess the other part of that—the answer to that question is— in New South Wales and some other states and territories have a fairly substantial network of environmental education centres. In New South Wales those centres, … 30, 40 of them spread across the state—and they provide, especially, service for schools in terms of schools bringing these kids out for a day, an excursion. Sometimes they offer more than a day, and accommodation. I think through sustainable schools, and through the environment education centres, over a long, long time, right back to the late 80's when the first curriculum in New South Wales came out, about—then called environmental education—there has been a real focus on good curriculum around this area. And one of the challenges in that focus has been how well they, teachers, include ESD or EE alongside the rest of their classroom work, but I think there's huge amounts of evidence that ESD improves curriculum and enriches classrooms. – Grahame

I think ESD really is a professional development for teachers as well. And I think if teachers have an understanding of how to implement it within their program that they’re—their programs are generally better for it. And not because it’s a—a topic that is vital, but just because it’s actually something that’s real—a real case. There’s a lot of resources out there, and I think if teachers sat down with them and put them all on the table they can actually create innovative teaching and learning programs. And maybe that’s a motivation that they need as a topic, to actually make them—make them do that—and look at an integrated curriculum, whether it be primary or high school, and work at a problem solving creative
approach where the kids use imagination, and it’s a topic that allowed for that to happen. I think a lot of the current curriculum is a bit abstract. And even with the implementation of the Australia Curriculum in its various formats, in the New South Wales or the general format, I think a lot of it still is—it doesn’t really pertain to the students real life. And bringing in the education for sustainability really makes it relevant to them. It gives them an approach to stuff where they can really look at different ideas. It has a different quality. You’re looking at different subject areas. I think that for any environmental education to exist in schools it has to be valued from—from the top down. And I don’t think that is actually happening at the moment. There’s a lot of programs and goodwill websites—support that’s out there. And I think that teachers—actually a lot of them—want to genuinely put it into their teaching. But the focus of the Education Department that we work in isn’t allowing that without a lot of creativity. And the pressures on teachers are ridiculous, for want of a better word. And I think teachers are—and this isn’t me personally talking— I put it into my teaching, but I just think that a lot of teachers don’t—don’t know how.  – Amanda

Where I am— We’re a candidate school for International Baccalaureate [IB] Primary Year’s Program. Since we’ve been undertaking that, I actually really like IB philosophy. I’m seeing the strengths, sustainably speaking, coming out in all classrooms and—because it’s giving children a high—you know—They’re applying higher level thinking and the areas— you know—like the essential ideas that are developed are real life related. So it’s problem solving skills, and learning to think critically, and question and make decisions—that’s all part of it. So the trans-disciplinary themes, for example. The IB is built on six trans-disciplinary skills, and they’re all themes that are who we are. And so it addresses our social, current, economic, environmental angles—you know—with belonging or being part of the planet. So that who we are, where we are in place and time, how we express ourselves, how the world works, how we organise ourselves in sharing the planet. I’m finding that the actual units of study we’ve done in Year 4 have really lent themselves to producing students that are connected to ESD, and I’m seeing the same in the upper levels, all across the school. So there’s a really lovely change happening. It’s not something that was there beforehand and it’s taken a major shift to bring about transformation, as there was quite a bit of resistance. But I think it’s actually starting to move where people are starting to really enjoy the language we use that is orientated, nice and environmentally friendly. So I think that there’s an awakening happening where we are, and how it can enrich the school curriculum, because more and more people are taking it on, because it’s been made compulsory, which it wasn’t before the IB. – Clarice

I believe [the current national curriculum] is very content knowledge heavy. And I believe that ESD will allow teachers and children to focus on, for example, the transformative ability of knowledge; action-oriented knowledge. It will be able to provide students with intellectual engagement with the content, but at the same time it’s also enabling them to take action on that content and it’s sort of removing it from. I’ll talk in question three about the silo effect of—you know—but I just believe that what’s happening is kids are often learning in silos. And the— What they’re learning is often quite alien to their, to the reality of their normal life, so I think ESD really provides an opportunity to provide that
intellectual engagement with it but at the same time the relevance—that sense of relevance to them—and it brings the current curriculum to life. I believe if teachers embrace it properly, and I think that’s going to be the problem. – Peter

My response will be specific to the age groups where I have employed what you would call education for sustainable development—although it’s more a matter of drawing on the natural world and making children aware of what’s happening there, and how it’s relevant to our lives, than a deliberate attempt to teach education for sustainability. But in a broader sense, education for sustainability does include children’s understanding of the natural world and all the things that they learn—the sense of knowing and belonging to their own environment that they have. So I think there are many, many ways in which you can enrich the school curriculum. We used to teach mathematics through teaching students about the … series in nature, the golden … all the ways in which that’s represented in nature. There are lots of different ways in which you can draw upon and include the natural world. But when you say, specifically, “can education for sustainable development improve and enrich school curriculum?” I think in a deliberate sense, yes it can, because it helps our students to understand more about where they live, what makes up—what all the elements are that make up the natural world around them, how they interact with that—the lifestyle decisions that they make, the policy decisions that are part of their living environment and their school environment. All of those things can be a really topical part of curriculum I think—at all ages, and I think do make a big difference to intellectual engagement with the curriculum topics, and of course with their immediate environment. So it draws a direct link between a number of topics across the curriculum—where they live, how they live—and the decisions that underpin that. – Kumara

3. Guiding students for future challenges

How can ESD guide students to have the knowledge, skills and values to care for and solve the sustainable development issues that will arise in their lifetime?

This question pertains to educating for an uncertain future as well as dealing with the complexity of future challenges to global sustainability.

Knowledge and skills, and the values to care, can be developed as children have more contact with their natural environment. I think as they play in a natural environment they’re discovering more about that environment, whether it’s the insects in the environment; it might be the plants; it might be animals that come to visit. And once they build a closer relationship with those— It might even just be the water in their environment— But as they build a closer relationship with the life or the materials in that environment they can then see the consequences of what happens when things around those change. And then that can be extended to learning about an uncertain future. So it might be within their year at preschool they may experience that it doesn’t rain for a long time. So then they can notice the change to the amount of insects, or the dying of the plants that are in their environment, or changes to them, or the increase in pests. So, I think for children, when they’re supported by adults who have the knowledge, skills and values to care for the environment, they can then see those things happening. – Julie
When you’re looking at ESD improving and enriching school curriculum development, then that pertains to how you’re going to treat the content or the knowledge, skills, and the values across your curriculum area that relate to sustainability. … ESD guide the students—I think it guides students in those three areas because it’s going to be particularly relevant and useful to them in the future. – Sandra

I think there’s some interesting things here—that its not just one set of knowledge, skills and values fits all. And it has to be graduated. And that it is about getting an ethic and care and love, and knowing. So it is— Here at school, it’s about knowing where we live locally and knowing us, and having an ability to care for locally, and so, those skills and values about our local bushland and our local flora and fauna, and our local environment groups. So the school is a member of the local environment group, so that a student is deeply embedded in the local before it then gets taken out into the global and about uncertainty. And the other aspect for us is not bringing the fear, and that the world has actually got a lot of beauty and wonder, and that we’re part of and connected into. So, one of the programs we’re looking at participating in is the Earth Keepers, where—you are—the boys are given the knowledge, skills and values to actually be earth keepers. But that’s done at quite a primary level. And so, then when you hope that they are in their teenage years—and they’re questioning and not really wanting to be connected into—they actually have that deep ethic that when they are those leaders they are actually able to make change. And for us, our boys are expected to go out into the world and be change agents, whether it’s in their home, or their town, or the world, so it is putting expectations on them. – Sue

I think one of the crucial aspects of ESD approaches to educating people around environmental and other problems is the thing around critical thinking. And also being quite analytical and evidence based. So all of those things are really quite important. The other— So I— ESD enables—enables a process where the teacher or the workshop leader doesn’t say “this is the right way.” It’s that we have what I call a basket of options, and people can choose the options that they want to act on, based on where they are in their own life. Actually I think mostly—the programs that work the best around ESD—there is a very supportive Principal and at least one committed teacher, and at least one committed parent, and then that makes a huge difference. Obviously if you have more than one in each of those then it—then it works much better. – Jasmine

I suppose there's a couple of different perspectives to this, and one of the first things that comes to mind from our current—sort of—perhaps, recent history, in terms of teaching and schools, is that we don’t do a couple of things very well at all, and one of them is our futures, and one of them is systems thinking. And those two skills or competencies are quite critical to that notion of solving complex problems that have a future consequence. And so without those sets of capabilities related to futures and systems young people are— perhaps, they're not being set up as well as they could be by our current education system. The— And I think—I suppose one of the great flaws that I see in thinking about ESD and that futures notion is that for many years—and this has been driven by media—is that we choose a very, very narrow frame in which to, I suppose, discuss or describe future environment and sustainably issues and problems. And that’s— through that—almost like worst case
scenario kind of things— It's the devastating sea level rise; it's the awful temperature increases; it's the desertification; it's lack of water; it's all of species destruction. All of those sorts of things are shouted out by the media. But what we don’t do is—which—what we don’t do with young people is that futures problem solving exercises. Okay, well, if this is one future, how do we articulate a different future that we would prefer? And then how do we create the steps between where we currently are and that preferred future, in order to avoid that worst case scenario? And some of these problems are absolutely global and highly complex. We need to create, with those sort of large scale and complex issues. I think educators are required to actually, I suppose, identify points of entry into those complex problems at an age appropriate level. So, for example, like our climate clever energy savers program, we don’t talk about the disastrous consequences of climate change too much. In fact, we talk about that very little. What we talk about is what are our current uses of energy. What are the sources of energy? What are the implications of using non-renewable resources for our energy production? And what are ways that we can actually then reduce the reliance on that? How do we become more energy efficient? How do we use less energy in our overall daily life? And once you frame the question like that, in a schools context, that opens up points of entry into that problem or into that issue. And so if you're talking about energy efficiency kids can say, “okay, well, I've got energy using appliances and things in my everyday life. How can I use that energy, or think about the energy, that they use to ensure that it's more efficient? Or how do I modify my personal behaviour, so that I actually use less energy?” So it's a reframing of those questions, in a way, so that we manage the scale and the complexity with kids, so it becomes age appropriate. And so we actually think about and create those—create that problem solving space for them with that futures context, with that systems thinking approach. – Mark

I guess from a personal perspective, the first thing is—to say and answer this question is—that if we don’t have sustainability education happening in schools then we actually don’t prepare our future generation, immediate future generation, to be able to cope with the changes that are going to happen in their lifetime. And that’s the tragedy, the fact that—not to bring politics particularly into this issue, but the fact that the Australian Curriculum is being reviewed at the moment and we’re hearing that there’s a chance of sustainability will be taken out of the cross-curriculum theme. Well—I mean I've got kids and grandkids and that just devastates me because those people, my grandkids, won't be prepared to take on the issues. They're going to confront them not too far down the track. So I guess the answer to the question from my perspective is twofold. One: sustainable education absolutely can guide, and does guide, students in their knowledge skills and values. That's it's total perspective, and it's about both informing and preparing in it's focus, when it's done well and it's done through a cross curriculum in the way the Australian Curriculum currently outlines it should be done. You take it out and you leave a generation unprepared for what's going to face them. They're also unprepared for what changes they have to make or consider. The world’s going to change, whether it's going to change by climate change—You can argue the science all you like, but it's going to change by increased population. It's going to change by increased need for energy. It's going to change by increased need for water. It's going to change because there's increased waste. So all of those issues—leave climate change aside if you like—are going to be issues facing my kids and grandkids. They
already face my kids. And they're going to be unprepared for that, or not as well prepared as they might be. And the notion that they should be prepared at home is rubbish, because their parents aren’t very well prepared for it either. And when they become parents they’ll be not prepared for it at all, because our education institutions won’t have been able to prepare them, and that just doesn’t make any sense to me at all. It doesn’t make any sense to me in terms of taking—reducing the emphasis in the area. Because even if you take it from a population, energy and waste, water sense—like I said, it's going to be something that impacts upon our future generation’s lives. And that concerns me greatly. And they need the assistance that can be provided through a smart cross curriculum, problem based approach that will allow schools to take this forward. And I can only see us heading backwards at the moment, not forwards, in this particular issue. – Grahame

It is about educating our kids so that they potentially need to educate their parents as well in knowledge and skills. We’ve got a generation that may not understand some sustainability practices in terms of practical things they could be doing, like worm farming or gardening. So we’re looking now at a generation of kids that can learn those skills within school, to go home and educate their parents as well. And if we’re looking at educating for an uncertain future we’re also giving the kids options of different skills and different ways to live, that they may be able to implement into their home lives, and then take that a step further and make sure that that’s then common practice as they go into adulthood. – Amanda

I think that it’s a real life problem; things like littering and international understanding and the sustainability charter. They’re very real life problems and I think that in having that real life problem—it’s promoting that problem, that thinking that’s not teacher-based but it’s student driven. In regard to the IB again, it’s the structure of the program that is enabling students to have the knowledge, skills and values to care for our planet. It’s compulsory because they’ve got a very high benchmark and if you don’t do what they ask you to, and the way it’s meant to be done, you can’t be authorised as a school. I think it’s the real life problem stuff that students get empowered by; actually making a difference, taking an action where it has a really great outcome. And then they get recognised for it, and then they’re seeing how they’re starting to really sort of see how important it is. – Clarice

ESD can do that [guide students to deal with future challenges] in a number of ways. I believe that ESD can provide knowledge that is driven towards taking action on issues; it can also provide knowledge that allows kids to look at the reality of what’s going on around them, the complexity of decisions that they’re hearing at the political level. It enables them to have—to realise that in fact it’s—they’re part of the problem that we’re facing, and that that triangle of issues that we—you know—we contend with as environmental educators—The idea of— We’re looking after the environment but we’re also taking into account human beings and their reaction and also the financial implications of our decision. So I believe it really does provide practical, contextually relevant learning experiences for kids, and enables them, if used correctly—and once again I do say it really is going to be the teachers that have to drive it—but taking action, allowing kids to take action on these issues in their homes and in their communities, rather than learning about the environment in a sort of siloed, isolated, sterile environment— Where it becomes learning about the
environment with these facts and figures, rather than the— Actually taking personal responsibility for it, and realising that their own norms and their own everyday expectations contribute to the issues and also contribute to the solution. A lot of leadership programs within schools naively label them as leadership programs for kids, but unfortunately they’re basically— The kids that become pretty much the puppets of adults again, and—you know—I do a little survey, a quick survey with my students at uni when they come in as first years. And I say to them—ask them two questions. One: how many of you have actually made a difference in your own school community in any of your time in primary school and secondary? And I normally get probably three or four students who would say, yeah, they actually contributed to the change in the school. And then I say: how many of you were in leadership positions in schools? And three quarters of the year group have their hand up for that. So we’re seeing this—you know— the fact that they were leaders but they didn’t actually do anything. So I think ESD provides us with that opportunity to give them an opportunity to really, really do something authentic. And whether it be something as simple as actually booking a meeting for a group to go and speak to the principal—you know—getting to talk to someone in a position of power in the school, but they’re the skills that are just lifelong skills. – Peter

I think initially people like Louise Chawla very clearly identify that time spent in the natural environment, particularly time spent where there has been scaffolding by an adult who models a sense of awe and wonder, and also insight into the interconnectedness … the ecosystems of the natural world, create sustainability dispositions in people as they grow into adults. And I think that’s a very important element to hang onto, particularly with regard to education, because as teachers we need to be ensuring that our children do have time in the natural world, and that we ourselves take the time to spend time in the natural world to understand what it is around us that we’re looking at, and to draw the parallels and the analogies from that, and to … with some of the complexities that arise, or that are inherently part of the natural world. And I think when we start to grapple with those things, and we start to use the natural world an arena for investigating those sorts of complex questions—questions of interrelationships between systems, symbiotic relationships, etc—then there’s a huge benefit when it comes to the way in which people learn to think, the way in which students learn to think. And I think the more critical, the more complexity that children learn to deal with and understand, the better prepared they will be to deal with the complex thinking and the complexities of what will be the decision making and the understandings that will be needed to cope with the sustainability … the global changes and the way in which human kind attempts to live sustainably within it. So I think it is essential—understandings about how we are going to go forward as human beings without a really sound long term ongoing focus on education for sustainability is just not going to be possible—it’s an essential component of it. – Kumara

4. Strengthening partnerships
How can ESD help strengthen the partnerships between schools and other stakeholders, including the surrounding community?
This question pertains to the usefulness of the school to its local community, and vice versa
I think particularly today, where we’ve lost connections with our community— I think sustainability is a great way to share information. I think because it’s a non-threatening form of information, we’re all learning about it, and you can—and we’re all finding out more and more about how it’s affecting our communities, and how we can work together to solve problems. And I think we’ve seen that through, I suppose, advocacy groups. Even things like … gas, where you might have people from very different political ends of the spectrum joining together over something that affects them locally. And I think for schools, if the children are following an issue—so perhaps it could be scarcity of water or something that’s happening to the water in their area—they could then share that information with their community. But they could then also invite experts from their community in to share further information with them, and help them discover more about it and deepen their knowledge. So I think it’s a great way to build community. And I think schools are in a perfect position for that—and early childhood services. I think actually early childhood services are in a better position because they do have a lot more contact with families than schools do. So there’s a stronger relationship there with the families. And they tend to be a very trusted source of information, because parents are asking them for support around parenting and other information to do with their children’s health and wellbeing. So I think they’re in a really good position to build those bridges into the community through their strong link with families. In some services it’s happening really well. We have early childhood services that are members of their local community gardens. And we have services having close contact with the sustainability officers from their local councils, who are coming in and supporting them with sustainable initiatives. So there is a lot happening in that way. I mean, there could be a lot more. I think the early childhood curriculum and the early childhood national quality standards have a strong focus on children being engaged in the community. And I think that’s really helping as well. And I think that experienced educators can see that sustainability is a really good way to do that, because they do often lack a lot of the time and knowledge, and their local councils can often be a really good support with that. And I do know of a local council where they are supporting a cluster of early childhood services with information around sustainability, but they’re also supporting the families at the same time. So the educators, the children and the parents are all learning together. Growing Minds and Greening Communities— It’s Shellharbour Council. It’s a really good example of that linking of early childhood services with their community and the families. One example is they had professional development for the educators around connecting children with nature, and then at the same time they ran a thing in the local park for the families to participate in, around their bush—the projects that they’re running around bush management—and I think it was something as well on rock platform discovery tours—that type of thing. They had, like, a big open fun day in the local park that was around getting outdoors and connecting with nature. – Julie

Because through those, and also parents— So through those partnerships a lot can be done in terms of developing the sustainability of the school and strengthening local resilience, which is going to be really important in the future as global. I mean, let’s face it, the world’s going to become a lot—it’s going to become a lot more difficult place to live in the future, and that’s not just in Australia but it’s all over the world. There’s going to be issues. Like a
really big issue, for example—you might like to use this one—is food security. So if you can get the school, for example, with the veggie garden—and getting some of the community people to come in and help with it, set it up, and do composting workshops and things like that, then that’s teaching the students as well as the parents, and so on. That’s actually something that I actually did do when I was living in Sydney. I actually went through that process and it was enlightening to do it. And I felt good doing it, but of course once you set up the partnerships—To be truly sustainable they have to be ongoing, and that takes a lot of work and effort. And currently, at the moment, the model most often is that initially there might be some good things happening but then the teacher leaves the school. It’s not systemic, this cooperation, and the whole thing falls over. So with the research that I was involved in, this idea of EFS becoming systemic in schools was the focus. It’s a long, long way from that. For example, the teachers in my workshop on Friday, most of them were excited to know about the possibilities with sustainability across the curriculum. And they could—I certainly opened their eyes and they could see the relevance of it, particularly the primary teachers over the whole curriculum. But they were sort of saying, how are we going to go back to school and promote this? So I gave them—well I gave them all my course notes and Power Points, so potentially they could go back and—but at the end of the day it’s really a leadership issue, and you really, really do need the principal on board to get all your stuff happening. – Sandra

This one is crucial because we’re all in the community and we all actually need each other, and it’s only in—So, for us, we are in partnership with other schools, and we are, as I said—We’re a member of our local environment group, and local government is part of the environment team here, so they’re always called upon just for advice and help. And we help them when they have their sustainability fair. We give them boy power to do whatever events that they have. And we hold the local e-waste day for the community because we actually have the space, and so, council hold their e-waste day here. And that’s just a small thing of what being a part of a partnership, or community, or network is. And we also host the school network, the Hunters Hill Lane Cove school network. Which for me that means that if you’ve got some isolated teachers in schools, who just have somebody else that they can talk to, and see, and share the small wins that are made. And if you don’t have that support from the top and you do have passion to be the sustainability person in your school, often that support has to come from outside. So that’s what our little school network does—it’s quite—you know—It’s a great thing. So, yeah, networks are really good. And just acknowledging that the school is part of the community. – Sue

ESD projects are typically more holistic, and so they enable schools to run programs that connect with the broader community on lots of different levels. So in the past I’ve worked with, say, Katoomba High School, and I—I ran a World Heritage Celebration Day and so we’re celebrating a range of things in that project. And we—we ran and we invited primary schools from Western Sydney to come up to that school, and the schools in Western Sydney were surprised to find that the High school backed onto a World Heritage National Park. And so then they—When they realised that, they realised why that school had a strong perspective on preventing litter from going into the park and preventing stormwater from going into the park, and that thing. So it was a place-based thing as well.
So the place of a school is really important, and its place in the local community needs to be strengthened. I, as a local government worker, have often worked with schools because they are a significant land use in our community by percentage of land. And, as well as the rights of the students to participate in the local community, and the— Typically some of the barriers are that local governments say we don’t have enough money to do what schools should be doing themselves. However, local government is about citizenship building and so that’s part of what we can do. I— so what I do is I try to bring in other agencies, like National Parks or … other land use people. … I bring in— So for that schools one, I brought in Aboriginal educators, and people involved in the Land Councils, and people involved in Aboriginal communities, people involved in bush care, the conservation groups, that thing. So that they can see that there’s ways in which you can tackle problems, and it won’t just be done quote on quote, by the government, that— that individuals have to take action. – Jasmine

One of the things that I suppose has been challenged over time, in recent history I should say, is the notion that what kids learn at school they will be able to apply behaviourally or whatever at home. And that’s not always the case, and particularly when it comes to ESD, that’s a difficult thing for kids to do. It’s as if—and it happens a lot, people say “Oh, yes, what kids will learn at school they then can apply at home”. Well that’s a challenge, because applying it at home actually needs a whole range or repertoire of skills for kids in order to negotiate how things should change at home—why they should change. They’re not the ultimate decision maker or bread winner in that house, and so how do they position themselves to be an influencer. And so I think that’s a whole set of skills that we tend not to teach our kids, and we sort of just think that that will magically osmose, as a set of skills, and transform from applying that sort of stuff in school to being able to apply that sort of stuff at home. And it’s wrong for kids to—for adults to think, oh, those kids will just go home and pester their parents until the parents give in. That’s not an appropriate way to do it. We should be stepping these kids up so that they are confident and eloquent presenters of rational thought and argument, and can help influence those decisions at home. And that’s the hard thing, as young people they don’t have those communication skills. They may not have those—that persuasive communication style. So that’s something we need to teach them, and that can be hard in some home contexts. So I think in terms of the school and community relationship, that that first one of student-at-school to student-at-home is a really important one. And those parents, those families, those carers of kids in the home space is that prime relationship. We need to look at—well— How can what kids learn in relation to sustainably be reflected in their home life? What tools and those skills do we need to give them, so they can transfer that knowledge and behaviour effectively? So I think that’s sort of a critical one that perhaps sometimes isn't properly understood or talked about.

In relation to the other partnerships, a school—well, I suppose increasingly schools are seen as part of the community, and so conversations with local businesses, local providers or suppliers, local community— Those conversations are a little bit more open, a little bit more visible these days, and I think that’s a good thing. If a school was to actually say to the community, over the next term, or over the next six months, our kids will be looking at—and it could be water saving; it could be energy saving; it could be creating a better habitat for wild, native species in their school—if that was a specific conversation they had with the
community, I think schools would find that there are a lot of people out there that would say “oh well”, number one, “I support you doing that” or number two, “I've got some ideas that could help”, or number three, “I've got some money or some resources that could help”. It's partly in the framing of what is the school doing, so it's partly in the framing of the purpose, and it's partly in the request: what are we actually asking the community to participate in with us along this journey? So I think—I think it is a two way conversation. It's the school saying “this is what we're doing and this is why we're doing it, and this is our request”. And then it's opening up that opportunity for the community to say, to respond to that and say, number one “yeah we support you, we think that’s a great idea, great thing to do”, and number two, “here are some ways that we can support you”. – Mark

That's a great question that because I actually think it's probably not been fantastically well done. Now that's a perspective of mine. Like, I guess what you're doing is collecting a whole range of perspectives and putting them together but—and I might be ill-informed about this one, but, I mean— Even schools that I know do it well with their kids, or do it well with the curriculum sets with their kids, and in their school management processes— There tends not to be a great interaction between the school and it's community. And I guess there's two levels of answer for this question. The curriculum level of answer is—I sometimes get concerned about the content of such schools program because they never ask the kids, or help the kids to be advocates in their own home for a particular environmental behaviour. You'll have programs that are informing kids about ways to recycling and blah, blah, blah, but they don’t talk to the kids about how you talk to the parents about—to improve their recycling or to buy material with best packaging or, etc. They just leave that area of content out altogether. And so if it happens it happens because the kid and the parent has the sort of communication processes— But often times it doesn't happen. And they're a great educator—kids. And if you can encourage them to do that, and help them to be able to do it, and find out if they are doing it, you've got a way into the community that we haven't explored well enough yet. The other level is schools are actually—these days—are quite often really good examples of how sustainability can be better managed in terms of building management, energy … waste view, etc. But they tend not to involve their community too much. So the P&C might well know that there are three rainwater tanks in that school, and they're collecting water to be used in flushing the toilets. So the active members of the community know that because [they’ve] probably been involved in paying for them, or seen them in the school, or whatever. Or the boss has told them at a P&C meeting. But that’s 2% of the population of the community, the parent body, let alone broader community. And so the communication, demonstration between the school and its community, is often pretty limited and could be much better. I don't know of any school who’s running a tour for it's community—come and have a barbeque and we show you how we’re saving money and electricity. So there's a whole other level that the community is missing out, and this community school partnership is missing out. Now somebody else might read this interview, and they might say “but hang on a minute, I know this school and that school and this school does that well”, and that's ... But I still think it's an exception and not a rule. Partly because teachers have got huge amounts to do, and community involvement takes time and energy and people don't necessarily want to be involved either. So it's a tough game. But I think on both those levels—both those sort of—
kids talking to their parents and the community becoming more aware of what the schools doing and may be involved in that. Both those levels—we’ve got a long way to go to actually make—be more optimal in the efforts that we’re putting in to try to educate people and use schools as a hub of that education, beyond just with it’s students. Yeah, but, I think there’s opportunity there, and maybe in some schools there’s action. But that might be an exception. – Grahame

I’ll use a practical example I can see in the school I work at. At the moment we’ve actually got a school garden, and it’s been planned in the shape of a rainbow snake. And the rainbow snake’s head actually points towards a mountain in our area that is where the dreaming stories come from. Many members of the community come in and help us plan that garden, and they have their gardening circle through our Indigenous community. We have a group of grandparents that come into our school each week, and grandparents in the garden; they basically run our gardening groups at lunchtime and help the kids. And so, just putting little feelers out into the community that aren’t necessarily related to the kids in the school that I work in. We’re trying also to create partnerships with the outside agencies like the National Parks and council around, by giving practical examples for the kids to work within the garden in the hope that in the future those kids will join groups like Landcare, and that stuff that they know is operating within the area because of the active involvement they’ve had in school situation. It’s all about empowering our parents to have more involvement as well, and for them to be planning and building the garden structures—not getting paid landscapers or whatever it might be in to do it. We’re trying to get our local community up, to set it up themselves, because it then is something that we hope can keep on—keep on going. It’s not a one hit wonder. It’s something that they’ve—they’ve created, they’ve been empowered to make. So hopefully it’s sustaining and keeps permeating throughout the community. – Amanda

I think that is the core of what we’re looking for, because everything else could shed out from that point; the curriculum and everything comes—can come from—the community. I think that—and even just with schools who are doing the AuSSI Vic ResourceSmart—Having those—that network there is invaluable. And it adds sort of a strength where other people get in touch. You know you’ve got a network there that strengthens things, but it also is noticed by others. It can become so strong that it’ll be everywhere. Hopefully it’ll spread, and the surrounding community love working with schools and schools love working with them. And where I am—we have—we’re very open to the community. I think our school has 70 different community services that children can undertake, and then that comes like helping kids in the less fortunate regions in our area, and they might just go after school and do tutoring, which is all part of it. It might be Landcare. I myself run a junior Landcare Group once a week after school. And then there’s caring for people in nursing homes, and they go everywhere. And the school has quite often been contacted by the greater community to take part in various things, but that togetherness, the wholeness—it just reminds students that they’re part of a greater whole. And that that’s really important because we can become quite separate, and it’s all about me, and I’ll walk over other people to get that point because it’s about me. But once again with the IB, International Baccalaureate, we teach that international mindedness as well as taking action and bringing
communities in. I run—As part of Year 4 program I run a Friday afternoon communities partnership program, where people from the community can come in and share skills with the students. So we have the local church guild come in and teach the children to knit and crochet, and we have the Landcare man who comes in and teaches—has been helping us build a wetland with the—There’s a habitat for endangered Growling Grass Frog. Other members of the school are welcome if they are able to get there to share their skills. It’s about sharing the skills of the community, and students can share their skills also, with other students. So we have billy cart building, cooking. We have the kitchen, the paddock to plate program. So there’s a couple of parents who are chefs who come in and work with the children there. I could go on forever. Doing First Aid together—We’ve got a parent coming in who’s going to do First Aid with all the children. It’s all about helping them form links. Being able to form links to what they’re doing in class is really important because it just makes it true, authentic to them. And I think being authentic is the real key. It can’t be like it’s token. Sustainability can become very token and just actions—token mechanical actions that this is what we do—unless you can bring about that deeper ecological understanding that we’re part of this, and that we’re one of many things on this planet. It’s not all about us. We’re thinking about the more than human world. – Clarice

I’ve found that it is a wonderful tool for building relationships between schools; whether it be school—I think that what is really important is that it provides that conduit of the link between the schools, and on a number of levels. One is that schools are always looking for innovate programs within their schools and if you—you know you have a line to other schools it sort of softens the workload a little bit, and it provides energy for the kids and ICT. And those sort of things can support that, so it doesn’t even have to be a school that’s close to you geographically. It can be a school on the other side of the country that our, your particular students can work with other kids. And I think the other very simple element is that we’re all in this together and so this whole—the plight of the environment and our responsibility to it is everyone’s responsibility so it really does provide a great way of linking schools together in a—that non-traditional way where it may not be all the kids. It could be small groups of students, but those students will remember that and take that on into their—I’m talking at a primary school level at the moment. But it certainly has enabled us at UOW [University of Wollongong] to build really strong relationships with leaders in schools, and with students in schools as well, because our—We get our kids to go out and—Our students to go out and work in schools on sustainability projects. And Karen Malone was—definitely steered us in that direction a number of years ago. And we’ve continued that sort of model, but it just means that our guys are building relationships with the schools, and the schools are developing this relationship with the university, and so on a number of levels it provides that opportunity. – Peter

When I was teaching kindergarten I engaged in a couple of adventures, you might say, with the children in the community, and the families became very much involved in that. One of them was investigating our local coastline, which at the time was Byron Bay, because the school I worked at was inland from there. And the topic in the kindergarten where I was teaching was focussing on humpback whales. And so we looked at the migration; we looked at habitat; we looked at species relationships, interspecies relationships, the ecology
of humpback whale community. And the parents became very much a part of that, and to
the extent that in the end we all found ourselves on dive boats—all of the children in the
class and a number of parents—out on dive boats watching the whales. And not just
watching the whales. I mean, we were out there for a couple of hours, and before we even
saw the whales we saw many, many other species of sea life. So there were dolphins, there
were manta rays, there were jellyfish, turtles, etc. And with each of them the children burst
into song. And the parents also knew quite a lot about these creatures through the
children—through the songs that we had written; through the explorations that we had
engaged in in the kindergarten. So the children were really well informed and enthusiastic,
in awe of a lot of these creatures, but they also knew a lot about them. They had a sense of
ownership and a sense of this being their place, and a place that they knew about. And as a
result of that, the families started to develop that as well. And to that extent the school
became a hub for exploring the local community and what was in it, and finding out more
about it. The following year, with another group of children, we were investigating air
currents in our region, and there was a particular dynamic in the air currents around Mount
Warning, and around the ... of where we lived. And so the children and I, and a number of
parents again, went up—we were investigating wedge tailed eagles at the time as well, as
part of the air currents. So we went up in small aeroplanes from the Tyagarah airbase, in
order to feel those air currents firsthand—to really get a sense of what a thermal was; to
really get a sense of what the ... dynamics of the airflows were in that area. And again, that
was another investigation into what was happening in our area—what was above us in that
instance. And it became a really useful understanding for the children, having investigated it
firsthand, and then had that physical experience of it. A lot of what came out of that then
rolled into subjects of natural sciences, mathematics and the creative arts. And the families
became more a part of that process as well. So they become more aware of the texts we
were using, more aware of the content in the classroom, and more aware of what was
happening in their own community. Having said this, we did live in a— The school was
situated in—what would you—an alternative community. And so the parents were
particularly amenable, or, if you like, open to ideas about educational sustainability, even
though back then that’s not what it was called. So having used that as an example I would
say yes. And I also found more recently, through my PhD, working with early childhood
centres, the investigation that we engaged in there was looking at the immediate natural
environment. And in doing so the children learned an enormous amount about where they
live—the flora and the fauna, the interactions between species, and just what was there.
And they share this information. They share their enthusiasm and their stories with their
families. And the families started to—family members started to make observations of their
own and feed these back into the preschool, and it became part of the storytelling, if you
like—part of the stories that the children used and knew about as part of their understanding
of where they lived. And I know I thought at the time that a logical extension of that
process would be to develop a program whereby the early childhood centres, or these
particular preschools, were the hub of community stories—where there was a deliberate
intent to involve community members and to create stories based on their knowledge and
their knowing of their community. So yes, I think it’s particularly useful for people to
understand where they are, and to develop the sensitivities that are required to really
understand that we are interdependent—that we can’t do without the environment around
us, and it will not survive … some degree of … on our part. So I think it becomes a lynchpin. Education for sustainable development in that sense becomes a lynchpin between schools and communities and other stakeholders, such as local council, NGOs, environmental organisations, etc. I think they can all work together. And education for sustainable development becomes the core of that. – Kumara

5. Promoting innovation

How can ESD promote innovation in the teaching-learning conceptual framework?

This question pertains to improving our understanding of how teachers learn to teach throughout their careers and how to engage learners to master the curricula.

Transformational education—that’s very much part of education for sustainability. And so far, from what is happening in schools, I think it’s a great way for teachers to see—or young teachers and pre-teachers—a great way for them to see that in action and that collaborative style of learning, where there’s not the expert out the front lecturing to everybody, but everybody collaborating to learn together and to critically reflect and solve problems, and put plans into action, and evaluate. It takes away that fear of failure—I think.—where people can see that everybody has something to bring to the table, and that—you know when you have a shared value that you’re working toward you can overcome quite a lot of other things that may divide people. And it levels out that power play. And I think it’s really important to be part of pre-teacher training, and for them to experience it in their training, so it’s modelled for them or their projects where they’re involved in that style of learning. Because I have noticed with early childhood educators that have done sustainability training—they are much more open to this style of education than those that haven’t. And it’s really supporting the focus of what they work with when they get into services. I think that the school system is in great need of education for sustainability being put into action. I know some of the schools I come in contact with are still very much back in that old style of hierarchical education style, and I think it’d be wonderful if the school system could be seen to change. I know it’s part of their policy, but it just often doesn’t seem to get down to the classroom level. With innovation you don’t know what you don’t know, and I think that’s half the problem. When you look at the rise in Australia of forest preschools, or bush preschools, it is booming. Absolutely booming. And there are now preschools in Victoria that spend a day on the beach. And no one drowns; no one dies. I think that we’ve just got to—we’ve really got to question why we think you can’t have water play. And then look at how they enact a benefit risk analysis where you list what the benefits are and then list what the risks are. And you’ll nearly always find there’s ten times more benefits than there are risks. And then how do you manage those risks? And just put those strategies in place. I was talking to someone in a preschool about their sustainability the other day and they said, “Oh we’re really starting to get somewhere with the four year olds, but we would like to do more with the two year olds.” And a lot of people don’t see that you can do sustainability with children that young. And I thought it’s so funny because you talk to people in the school system and they say, “Oh should only do it with fourth graders, but no one younger can do it.” And I thought someone needs to let them know how capable young children are. – Julie
ESD can certainly promote innovation because it’s a complete flip on how teachers are taught at university. I mean, I was a teacher for 20 years and I was basically taught my subject discipline. I wasn’t taught about links at all. And there’s a few things happening in pre-service teacher education that I found out about, but basically it’s not mainstream and it just relies on the interest of the odd academic here and there. But a lot of universities now have sustainability directors or managers. And what they’re doing is as well as looking at the physical operations on campus, which has been a traditional focus, they are moving into the curriculum area. I think EIS and ESD have a huge potential to promote innovation in the teaching, learning, conceptual framework. And how teachers learn to teach throughout their careers, as I said—it’s basically a silos approach. Engaging learners—I guess traditionally teachers have been taught about the different stages that students go through in terms of their conceptual development. I can’t remember all the different stages, but with sustainability the area where it’s really streaks ahead is the early childhood sector, because they’ve actually written sustainability into their national standards. So the great thing about sustainability is it’s possible to start with very young children and go right through the senior years. And you simply reinforce the connections, but you can do them in a deeper way, so it certainly has a lot of potential there. It’s just that it’s a bit of an uphill battle. I mean, it’s pretty much exhausting. And the reason it’s exhausting is that it’s not mainstream. But you need to get a little committee and just work with the kids. Honestly—This is how it worked at Pennant Hills when I helped the teacher there set it up. Work with the kids; don’t worry about the teachers if you can’t—even if you can get one teacher on board that’s great. But if you can’t, just work with the kids, and what’ll happen is that more kids—if the kids are having fun—And there's no point in doing it unless they’re having fun. If they’re having fun then more kids will want to join and gradually the teachers will come on board. – Sandra

I’m at a little bit of a disadvantage there because I don’t teach in the school. I’m the sustainability officer in the school, but I have the student programs and I help teachers, and come in. So this week I’ve been doing catchments for Year 8 geography just to give a bit of assistance in Year 8. And so, I’m not a teacher, but my role is to help them innovate within their teaching. And I think some of the sustainability action process—you know—that way of thinking of taking a problem and actually having solutions and coming up with solutions. And getting student ownership of an environmental problem is exciting, if a teacher is allowed to do that, and if a teacher is allowed to go outside and use nature in part of their curriculum. Because it is a little bit difficult when some school authorities say no teaching can happen outside, and so that actually spoils the potential of using real life and local sustainability issues in teaching. I also think that teachers—just a lot of teachers out there—who don’t feel confident enough to tackle this subject. Networks I think are really helpful here, and really schools that are just starting out—they know they should do it but they don’t know where the advice is. They come to a network meeting, and council’s there, and they say, “look I’ll come in and do a worm farming day for you”, or “I’ll do a waste audit for you”, and then the staff get confidence. They realise that, oh it’s not so hard—a worm farm doesn’t smell; a worm farm will be okay to have. And so, it’s just planting those little seeds of confidence in staff, in teachers. Sustainability is an action process, so you’re sort of—you don’t actually know what the outcome is when you begin the unit. The unit— It’s
exploring some energy options for the school. Well, who knows what that could be. It could be putting shutters on, or it could be changing light bulbs. But if you give—you know—if you're a bit open, then yes, it’s exciting. It’s innovative. – Sue

I work outside that process, but part of what I’m doing is supporting teachers to do more of this work. At Marrickville West, for example, the Assistant Principal organised for their school to do a whole term K to 6 Program on the Cooks River that involved every element of the school curriculum. And they’ve written up that material, which is— A substantial contribution my role is to consider how can I assist others teachers or schools to take up that process. And so the Principal, who—who produced that material, told me that when you intensively focus on something, and—and use the different subject curriculum to reinforce each other in a coherent method, then the learning is so much greater. And so, it enabled field trips to be done with considerable context and considerable follow-up. The teachers all learnt in that process, and so there was significant support for teachers to tackle this issue, which may not have been their primary interest level. And so it—the project—focus ESD. And a project focus or a place-based focus really—I think—is absolutely vital. And I think local government can help our schools do that more because local government is a lot about place building. I work with a range of schools and I can see some schools take a place-based, project based approach, and the students are much more knowledgeable. And the schools where it’s much more limited in terms of what they can connect with in the general public—in the general community they’re—they struggle more with this approach. – Jasmine

I might go back to that climate clever energy savers program to give you an example of how that particular sustainability focused teaching and learning program is an example of this. That program has underpinning—has an underpinning of a—we call it the sustainability action process. It's like a methodology that we developed for sustainability, because young people—the students—the kids are in charge of actually working through that methodology to develop—to analyse their energy use, to identify some solutions, to take them through to possible implementation. We develop that process so the kids could walk through it themselves. We found that our teachers fell very much into two particular groups. One group very strongly said, “before I can teach anything about energy, see climate change, I need to master the knowledge myself”. So the teachers wanted a lot of background information. They wanted— I suppose they wanted all of the science, the technology behind it. They wanted to— In a way, they wanted to know everything they should know in order to be that best teacher in the classroom for when those kids are going through that process. But, as you know, all of that information related to energy, energy efficiency, climate change, is highly complex, rapidly evolving. So no one can be an expert in that. The other group of teachers— So that was a challenge for the teachers— It's a confidence thing. The other group of teachers were—I suppose—were happy to look at how the actual five step process the kids were using—they were happy for that process to guide the learning. So whilst they may not know all of the detail about climate change energy efficiency, as the kids stepped through that process and needed to know more things, or new things, or find out something—that just in time learning—the teachers were also doing that just in time learning and research with the kids as they went through. Now we've had
teachers argue very strongly both ways in the evaluation of the program—of why it's important to know, have a certain, or threshold amount of information about the stuff you're teaching. And the other argument being, well if you’ve got—if you come up against an area where you don’t know, or you have insufficient knowledge, how do you become co-learners? Or how do you walk side by side with those kids as you’re walking through that problem? And I think … ESD is going to increasingly bring up those—that complexity. We’ll move out of that— We’ll move out of, I suppose, that traditional model of teacher and learner, into perhaps a newer model that’s starting to emerge, of co-learners. So we’re actually taking— We’re actually asking young people to look at complex issues, big problems, and then we’re actually, I suppose, learning and working with them as they solve that problem themselves. So I think there's a bit of a dynamic change that needs to happen when it comes to ESD. This is not like a teacher in a high school who is a master of Shakespeare. It's not like a technology teacher who is highly skilled that—at a physical sort of teaching skill. This is a very different. And it's because it's rapidly evolving and our knowledge about ESD is rapidly evolving. The solutions are rapidly evolving as well. So I think there's—this is a particular area of teaching and learning that will be viewed quite differently as we move, as we continue on, into the future. – Mark

I don’t have much knowledge about the specifics about how that process happens, now, in a pre-service sense for teachers. I guess, in general terms, it concerns me that we have an aging teacher force. Teacher ages— I think average in New South Wales are around 48. Now if that's the average age of teachers, I think that's fairly accurate information. That … most of those people, most people in their profession, have not have pre-service education of great consequence around issues to do with sustainability. Those newer teachers most likely have, because of the way the area has been integrated within teacher training, at pre-service. And so, therefore, one of the issues has been, for a little while, that we need to get increasing teacher development happening in an in-service way around this particular area. Because that’s the only way of getting the current teachers, who have been in the game for a while, the teaching resources they need. I suspect, but I don’t know— And it depends on a school’s priority, and there are a whole range of school priorities. If a school offers PD on how to teach maths better, compared to how to teach sustainability, you’d probably have most teachers in that primary school putting their hand up for maths first, before sustainability. I think there are issues around sustainability education and teacher development that are hugely important, and a bit different to issues around more traditional parts of the curriculum, because most teachers have had some pre-service training in those more traditional areas. – Grahame

I think this is probably something I’ve seen as the biggest problem, the biggest obstacle in education for sustainability. I currently work with a staff that are pretty much all verging on retirement bar, a couple. And for them to go back and—and look at their teaching in a different way, is very, very challenging for some of them. And to then start up new curriculums based on different resources that are out there is, is not something they actually want to do. They’re scared of their skills working in a garden, or doing an energy audit or whatever it might be. They’re not certain of how to do that, so they— Instead of seeking support—they don’t do it. And I think we are in a—well— Not, I think— I know we are in
a regional area, so the amount of outside agencies that can actually come and help us are—they basically don’t really exist. They’re few and far between. So to support our teachers in a project based along that line is—it requires a—a teacher or someone that’s done their background searches on how to actually implement sustainability. And we’re looking at even new teachers coming through; new graduates drive it. And I think that’s where a lot of our teachers are struggling to put it into place. They’ve not been taught to value sustainability in their own lives, so they’re not teaching it to the kids. And it—it’s really shouldn’t matter if it’s their personal project or not, but if they have the skills when they come into teaching through their undergraduate time, then they can put it in place. And then we’re looking at an education climate that now rests really solely within the testing regime. I work in a National Partnership school, so all of our time and staff meetings is based on literacy and numeracy teaching. And to put in any innovative program you really have to put in the hard yards and do your research as to how it fits, otherwise the education system that we work in won’t allow it to happen. And I think teachers are struggling to overcome that. Even though within the teaching and learning framework it fits, and it is really supported within all those facets. But it’s a matter of knowing how to implement it, and where it actually fits within a program, because if it’s not within curriculum based outcomes you won’t get much above a garden group at lunch time happening. And that’s not where the kids are going to learn actual knowledge. They can learn skills but they’re not going to learn actual knowledge to—to keep it going. – Amanda

I think that this has to come back to that authentic sort of learning; the real life, hands on opportunities that are embedded into their learning. We’re lifelong learners, and I suppose one of the things that I’ve really been pushing and promoting in our year level is the systems thinking. Because we’re doing this wonderful project that requires systems thinking and we’ve used it from an ecological—taken an ecological stance to develop our unit of study inquiry over the last term. For example, so we looked at how systems enable societies to function and the children looked at manmade and natural systems. And then they’re, of course, applying it to sustainable context thinking. I think it can be quite daunting because you’re bringing about social change, cultural change, but I’m pleased to say that our cultural change is happening. And I really believe that the IB, International Baccalaureate Program, with its more structured program and its emphasis on sustainability and on being a global citizen, has been very helpful. I’m passionate about all of this—it’s quite exciting what we’re doing, and I’m hoping that I can—what we’re doing will somehow be a really great model for other schools to sort of aspire to, as an example of how you can embed it into everyday curriculum. – Clarice

Look to be honest— What comes to mind for me is— I think what ESD does is it forces teachers to put on a new set of lens, a lens, a different lens. And really is— It’s a challenge to try and get teachers to put on this lens. And so that when they look at the curricula, when they look at the syllabus, that are there they’re looking at them for cues through which they can teach ESD, and that then enables them to create this authentic learning. And so you no longer have the situation where we have early career teachers with that wag the dog situation, where the curriculum is actually wagging them around because they’re feeling they have to meet all of the requirements, rather than—and that— Through that, what
happens is they end up being killed with kindness by older teachers who give them their out—their worksheets, and give them their units of work. And of course that’s been generated by that particular person, and when you take it to another person you’re sort of losing the rationale behind that unit of work. So I think ESD—really—if we can get teachers to be thinking along those lines, what it does is it opens up that whole different way of looking at the curriculum that’s in front of them, or the curricula or the syllabus in front of them. That’s probably not answering the questions but it just—yeah—And how teachers learn to teach through their careers—you know—It provides them with the opportunity with—If you’re going to teach it well, it provides them with that opportunity to have experiential learning for their kids; to embrace outside community agencies getting people in from environmental ed centres, or looking to align with council, and those sort of things. So it sort of takes their mindset out of the books and more into the community, and more into other ways of teaching. So I think—you know—it offers a great platform for that. –Peter

For me, the innovation through education for sustainable development, when it comes to supporting pre-service teachers is—or one of the key ways of using it and engaging it is through the arts, because I think it’s helped to develop particular types of sensitivity about the environment … which you’re working. So if you’re focussing on particular types of animals, insects, particular types of weather phenomenon, different sorts of flora, different types of trees and bushes, and the whole gamut, if you like, of flora in an area, there are so many differences between them, and there is so much that you can learn by exploring these things through the arts, when it comes to colour, sound, smell, proportions, interactions. I think the arts is a really practical way of helping pre-service teachers to become sensitive to where they live. And it becomes the basis for interpretation of facts as well, which to some extent sounds like a contradiction. But I think if you are observing in situ what’s going on … you’re looking at situation that’s real, that’s happening, but interpreting it through a number of media, through the arts, it’s still a representation of what’s there—the media—through a variety of different ways of knowing. And the arts are well known—well respected, or well known to provide more lateral ways of understanding things in addition to the typical cognitive understandings that people have. So I think that is one of the ways through which innovation comes about—it’s through those synergies of different ways of understanding. I think the arts and science work particularly well together, and the innovation that’s possible through those understandings …. If you start off with a scientific phenomenon—national sciences phenomenon, or a symbiotic relationships, say, between sucker fish and sharks, and what’s happening there—you can’t help but be in awe or wonder about the ways in which these relationships have come about, or the timeframes they were … they’ve developed, or the interspecies relationships that’s made that possible, or the inherent wisdom in groups of the animals in the way they hunt for food, for example. There are so many different ways in which we can look at natural phenomenon and … a sense of awe and wonder about it. And I think that one of the reasons the arts are so important is because we need to feel that. I think we really need to feel that in order to connect with the natural world. And I think when we do feel that, we can really be in awe, and we can feel the benefit, if you like, or we can see the benefit in interpretation and expression through the arts, but also through more quantitative type process … when it
comes to meeting learning outcomes in curricula there’s no reason why those processes can’t be used there. So I think … teachers to learn to teach throughout their careers about education for sustainable development. They need to have explored it and to have experienced it in a number of ways, and they need to be sensitive to what it is they’re experiencing. And so they need a variety of modes through which they can do that, and I think the arts especially. – Kumara

**Discussion**

**Improving educational outcomes**

*General beliefs about improving educational outcomes*

The educators interviewed for this study generally had strong beliefs in the potential of ESD to improve educational outcomes. They referred to the application of the principles of critical thinking, problem solving, the project approach, authentic learning and the ability to escape the traditional classroom as the basis of their beliefs. Literacy and numeracy were named as traditional learning outcomes that they believed could be improved. Some saw this as unrealised potential because ‘ESD is not really happening in schools' but others were quite sure that this was already being achieved – ‘if we look at that from a student’s perspective, the answer is yes, of course it can’. A determining factor as to whether this potential was realised was identified as teacher capacity ‘to create coherent integrated, well-structured learning experiences’ that target areas of learning such as literacy, numeracy, science understanding, and the capacity for problem solving.

*Observational evidence*

Classroom teachers were able to provide observational evidence of improved motivation, ‘I find them actually striving to write the work, to do better projects, to make up better oral presentations’ and improved learning outcomes. ‘I have seen test scores rise and student attendance improve”. However, these observations have not been presented in the form of ‘hard data’. Several of the educators noted the absence of published data to provide evidence of improved learning outcomes as a result of ESD. Conference presentations were cited as a source of some evidence to support Indigenous children’s learning outcomes, but these were not translated into published articles.

*Future research potential*

The potential for future research to provide evidence that ESD improves educational outcomes was identified as ‘the next bridge that we would be focussing on’ and the potential for a longitudinal study of past students was raised as a possibility based on observations that ‘the ones who were especially interested in sustainability have continued to follow their interest … And they’re also coming out with perfect scores—a lot of them—in final secondary school exams’.

**Enriching school curriculum**

**Authentic real life curriculum**
The most prominent way that educators observed an enriched curriculum was in the implementation of authentic real life learning. A sense of relevance brings the curriculum to life. They described this approach as collaborative, in the sense that teacher and children are learning together, and solving problems in their local communities. They observed that ‘whether it’s a piece of factual information, or a piece of knowledge they don’t have, or whether it’s a skill or process that they need to develop or acquire or master before they can actually solve the problem—that’s where … intellectual engagement can … really step up’. They believe that ESD allows teachers and children to focus on ‘the transformative ability of … action-oriented knowledge’. Breaking down the silos that alienate learning from ‘normal life’ was seen to be a particular enabling characteristic of ESD curriculum.

**Local place-based curriculum**
For some of the educators ESD curriculum was local and place-based because ‘there is always an environmental context that a teacher could leverage … to create a very close immediate authentic and highly relevant experience for young people’. This was seen as providing ‘a rich, exciting, engaging relevant school curriculum’ where problems can be chosen that are local, real and accessible. Local place-based ESD included new migrants learning about local places and teaching teachers how to do this. A rich, exciting, engaging relevant school curriculum involves choosing contexts, choosing themes and including ‘young people – they become actually part of … the problem solving team’. The network of 30-40 Environmental Education Centres spread across NSW was seen to be crucial to the implementation of place-based curriculum, where teachers and students could learning how to implement place-based sustainability education. Local places were seen as drawing a direct link between a number of topics across the curriculum—where they live, how they live—and the decisions that underpin that in engaging and relevant ways.

**Transdisciplinary curriculum**
Transdisciplinary or integrated curriculum, that crosses traditional discipline boundaries, was seen to offer creative and imaginative possibilities for student learning in which they ‘work at a problem solving creative approach [and] use imagination, and it’s a topic that allowed for that to happen’. In examples offered by educators, all subjects could be taught within the framework of ESD including English, mathematics, geography and art. ‘Our art [has] a major focus on getting outside and using the natural landscape. And then geography,… it’s embedded throughout—getting that whole triple bottom line’. The significance of emphasising the ‘triple bottom line’ is that it distinguishes ESD from its predecessors in Environmental Education. A similar and related phenomenon was described in an independent school that had taken on the International Baccalaureate (IB) Primary Year’s Program. The IB was described as built on six transdisciplinary skills. They’re all themes that address ‘our social, current, economic, environmental angles … with belonging or being part of the planet … who we are, where we are in place and time,
how we express ourselves, how the world works, how we organise ourselves in sharing the planet. Another example was an educator who described using arts based approaches and engaging with the natural world to teach subjects like mathematics to primary school children.

**Guiding for future challenges**

*Complexity and systems thinking*

The educators generally agreed that, when turning to the larger question of education for future challenges, the problems are ‘absolutely global and highly complex’. They identified the question of how to approach such complexity and the need for systems thinking as significant considerations. One educator argued that futures and systems thinking are not done well because such thinking is driven by the media, and is based on crisis scenarios such as ‘devastating sea level rise,… awful temperature increases,… desertification,… lack of water,… all of species destruction’. Crisis thinking fails to address the question of how to create the steps between where we currently are and a preferred future, in order to avoid these worst case scenarios. Focusing on building knowledge and skills that can inform personal choices and behavior change was suggested as a way to approach ESD in relation to the future sustainability challenges that young people will face in a changing world.

*Age appropriate learning*

For all educators, the need to identify points of entry into such complex problems at an age appropriate level was an important consideration – to reframe questions with kids in an age appropriate way that manages scale and complexity. With that futures context, that systems thinking approach, we actually think about and create that problem solving space for kids.

Several agreed that an important starting point was to develop an affective attachment to local places, to develop ‘an ethic and care and love, and knowing’. For very young children this was described as knowing their local place in intimate detail—the insects, plants, animals, water in their environment—and ‘as they build a closer relationship with the life or the materials in that environment they can then see the consequences of what happens when things around those change’. Engaging with the natural world was seen as a way to approach complexity. When ‘we start to use the natural world as an arena for investigating those sorts of complex questions—questions of interrelationships between systems, symbiotic relationships, etc—then there’s a huge benefit when it comes to the way in which … students learn to think’. Through this kind of thinking they will come to understand, and be better prepared to deal with, the complexities of decision making, global changes and the way in which human kind attempts to live sustainably.

*Futures as generational change*

For these educators, guiding for future challenges was about generational change and the responsibility to ‘prepare our future generation, immediate future generation, to be able to cope with the changes that are going to happen in their lifetime’. The ethical question of our responsibility was raised by one educator facing the political reality of the possibility of removing sustainability from the national curriculum. ‘You take it out and you leave a
generation unprepared for what's going to face them. They're also unprepared for what changes they have to make or consider’. In this sense they believed that ESD for future challenges is about educating children to be able to educate their parents as well as acquiring the knowledge and skills themselves. In this way children have the option of ‘different ways to live, that they may be able to implement into their home lives, and then take that a step further and make sure that that’s then common practice as they go into adulthood’. ESD for future challenges was also about creating future leaders as ‘Earth Keepers’ where the learning at primary school level will be carried through to their own adult lives when they become ‘change agents, whether it’s in their home, or their town, or the world’.

**Students empowered to make a difference**

In order for students to carry through to older generations, and to their own adult lives, educators believed that they need to be empowered in the present: ‘I think it’s the real life problem stuff that students get empowered by; actually making a difference, taking an action where it has a really great outcome. And then they get recognised for it, and then they’re seeing how they’re starting to really sort of see how important it is’. In this way ESD can provide ‘knowledge that is driven towards taking action on issues; it can also provide knowledge that allows kids to look at the reality of what’s going on around them, the complexity of decisions that they’re hearing at the political level’. The important aspect is that students need to be able to take authentic action, however small, in order to develop lifelong skills as agents of change. ESD is seen as providing ‘practical, contextually relevant learning experiences for kids, and enables them … to take action on these issues in their homes and in their communities, rather than learning about the environment in a sort of siloed, isolated, sterile environment’.

**Strengthening partnerships**

**Ideological and practical drivers**

For all of the educators in this study, building partnerships was fundamental to Education for Sustainable Development. ESD was described as the lynchpin – the core of building partnerships. The nature of partnerships were wide ranging, including between school and family, between different schools (including those geographically distant), between schools and communities, and as networks of diverse organisations supporting common goals. Everything was seen as evolving from this central tenet of building partnerships: ‘I think that is the core of what we’re looking for, because everything else could shed out from that point; the curriculum and everything comes—can come from—the community’. Both ideological and practical drivers were cited as shaping the epistemologies underpinning the significance of building partnerships. Ideological reasons included the nature of ESD as holistic; partnerships as one of the five principles of EfS; and shared place-based concerns: ‘So it was a place-based thing as well. So the place of a school is really important, and its place in the local community needs to be strengthened’.

Practical reasons included the underpinning idea of the necessity of collective responses and collaborative actions. Because of the scale and complexity of global challenges, ‘we’re all
finding out more and more about how it’s affecting our communities, and how we can work together to solve problems’. Networks and partnerships were seen in affective terms, as providing safety, strength and belonging in the face of adversity: ‘that network there is invaluable. And it adds sort of a strength where other people get in touch’. Partnerships and networks were seen as having their own ripple effect, where the impetus of ESD spread wider than the initial partnership which might be only between a child and their parents, or a school and its families: ‘You know you’ve got a network there that strengthens things, but it also is noticed by others. It can become so strong that it’ll be everywhere. Hopefully it’ll spread, and the surrounding community love working with schools and schools love working with them….Where I am … we’re very open to the community’. The strength of the network is built on its affective meaning, described by this educator as ‘love’.

Practical examples
Many practical examples supported the suggestion that ‘increasingly schools are seen as part of the community, and so conversations with local businesses, local providers or suppliers, local community … are a little bit more open, a little bit more visible these days’. Practical examples of partnerships were numerous, extensive, and described by all of the educators. They included schools and early childhood services forming partnerships with community gardens and sustainability officers from their local councils; engaging in joint activities such as sustainability fairs and heritage celebrations, leading sustainability networks, and partnering in junior and community-based Landcare groups.

Classroom teachers provided detailed information about the nature of the two way engagement that happens through these partnerships. For example, ‘people from the community can come in and share skills with the students…. We have the local church guild come in and teach the children to knit and crochet, and we have the Landcare man who comes in and teaches—[he] has been helping us build a wetland … There’s a habitat for endangered Growling Grass Frog’. Another teacher who described the Indigenous design for the school garden explained how she puts ‘little feelers out into the community’ to involve parents, grandparents and others, in the belief that the partnerships will be enduring long after the specific projects that generate them.

Pedagogies of partnership forming
The pedagogical processes of community engagement and partnership forming are evident in many of the practical examples and detailed descriptions of the nature of collaborative community actions. One of the essential elements is that the formation of partnership needs to be understood as a two way conversation, with the school saying what they’re doing and ‘opening up that opportunity for the community to … respond’. In terms of the school and community relationship, the primary relationship that was identified was between the student at home with their families. Rather than assuming that children are able to take their sustainability learning and practices home, educators believed ‘[w]e should be stepping these kids up so that they are confident and eloquent presenters of rational thought and argument, and can help influence those decisions at home’.
The whole process of forming community partnerships was seen as a pedagogical process with both sides needing to learn: ‘I think on both those levels … both … kids talking to their parents and the community becoming more aware of what the schools doing and may be involved in…. We've got a long way to go to actually … be more optimal in the efforts that we’re putting in to try to educate people and use schools as a hub of that education, beyond just with its students’.

Other examples included children learning in the wider community, with one educator reporting over 70 community organisations where the children can volunteer, including a local nursing home. Through this practice strong partnerships are built, with the school often contacted by the greater community to take part in various activities, to build a sense of togetherness that ‘reminds students that they're part of a greater whole’. Schools also extend their boundaries through place-based community engagement. For example, a school in the Blue Mountains west of Sydney conducted a World Heritage Celebration Day with other schools from the region. The other schools were able to learn about the prevention of litter and storm water going into the world heritage conservation area, extending their perspective of community and the local through place-based sustainability practices.

**Significant outcomes**

These, and similar partnership activities described by the educators in this study, reveal the exceptional results of learning and forming communities of practice through ESD. The building and nurturing of sustainability networks can address the isolation of individual teachers working in schools where there is little shared practice. Most importantly, however, they engage children and their communities in important learning for sustainability actions in their local places. An outstanding example comes from one educator who described a kindergarten class focusing on humpback whales—where they researched the migration, habitat, species relationships, interspecies relationships and the ecology of humpback whale community. The parents became very much a part of the children’s learning, to the extent that they organised an excursion in dive boats, watching the whales and other forms of sea life such as manta rays jellyfish and turtles with each of the children bursting into song. They had written the songs about all of the sea creatures as they learned about them and shared this knowledge with their parents. This teacher described sustainability education practices such as these as ‘a wonderful tool for building relationships’, for families to become part of the ongoing storytelling of their schools, and for building innovative curriculum between schools.

**Promoting innovation**

**Challenges of innovation**

Overwhelmingly, the educators in this study believed that there are profound challenges in relation to the ability of Education for Sustainable Development to initiate innovation in teaching practices. The main reason given for this was the ageing workforce, with the implication that the majority of teachers did not have the benefit of learning about sustainability education in their pre-service teacher education. While statistics were offered
about the medium age of the teaching workforce, no evidence was provided that more experienced teachers are less able to introduce innovations into school curriculum than newer, more recently trained teachers. Other reasons identified as difficulties for introducing curriculum innovation were the current focus on literacy and numeracy outcomes in relation to standardised testing, the lack of sustainability education in the preparation of school teachers as opposed to early childhood educators, and the challenges of a discipline oriented curriculum based on traditional knowledge and teachers as experts.

**Nature of innovation**
Innovation was understood to involve a process of teachers being able to view curriculum ‘through a new lens’ that enables them to create ‘authentic learning experiences’ with ‘real life, hands on opportunities that are embedded into their learning’. As well as the ability to create authentic learning experiences within the curriculum, innovation in relation to ESD was seen as involving collaborative learning where everyone is learning together; learning that is continuous across all sectors from early childhood to higher education; action-oriented learning, where the learners are involved in the design of the learning; and learning that involves going out into the community. This learning was described as open ended, where the outcomes could not be determined in advance and therefore in opposition to mainstream or ‘traditional’ teaching modes. Such learning was not seen to be about an individual educator’s activities, but a collective responsibility that required a ‘cultural change’ in schools. Two examples were provided where such a cultural change had taken place.

**Examples of innovation**
The first example of a cultural change was previously described in relation to the school that adopted the International Baccalaureate curriculum. The IB approach was seen to be well aligned in its curriculum and pedagogical approaches with ESD. IB, ‘with its more structured program and its emphasis on sustainability and on being a global citizen, has been very helpful’. This teacher was able to implement a project that requires systems thinking across the year level, taking an ecological stance to develop a unit of study inquiry looking at how systems enable societies to function. The second is an example of the introduction of a K-6 curriculum about the local river that involved every element of the school curriculum. Through this curriculum teachers became involved who might not otherwise have considered ESD and their classroom teaching was changed. The final idea for curriculum innovation through ESD is to employ arts based approaches. This educator described how using colour, sound, smell, proportions, interactions through the arts is a practical way of helping pre-service teachers to become sensitive to where they live. The arts provides more lateral ways of understanding things in addition to typical cognitive approaches and is one of the ways through which innovation comes about, through those synergies of different ways of understanding.

**Conclusions**
The ten educators who were interviewed for this study, using semi-structured, in-depth interviews, were experts in the field of Education for Sustainable Development representing
different positions and perspectives. They ranged from early childhood to school teachers, and tertiary education practitioners and consultants, with a wide range of on-the-ground experience. While they were all asked the same specific questions (specified at the beginning of this report), their in-depth responses revealed wide ranging views—as one would expect from such a diverse and experienced group. The data have been analysed, across the range of their individual responses within each of the questions, to identify a number of key themes or concerns arising from the data. Within the topic of **Improving educational outcomes**, educators expressed general beliefs about what this might mean, and a little observational evidence that traditional educational outcomes are improved in the context of sustainability education. However, the evidence was slight and the need for systematic study of this area was identified as a priority for future research. Educators were much more forthcoming about the question of enriching the school curriculum with the addition of ESD, using a number of terms including ‘relevance’, ‘collaborative’, ‘creative authentic’, ‘problem solving’, ‘action-oriented’, ‘transdisciplinary’, and ‘transformative’. The categories of Authentic real life curriculum, Local place-based curriculum and Transdisciplinary curriculum covered the range of ways that they considered the curriculum was enhanced with sustainability education.

In relation to **Guiding for future challenges**, educators were less sure about the futures potential of ESD in complexity and systems thinking, but expressed a number of different ways that this could be understood. The main proviso for all educators was that the introduction of complexity and crisis scenarios needed to be age appropriate, and that students at all levels needed to be empowered to take action to make a difference in their worlds, however small that might be. **Strengthening partnerships** again yielded vigorous and comprehensive responses, beginning with a range of ideological and practical drivers for the formation of community partnerships. Educators gave numerous practical examples that revealed the pedagogical processes behind the partnership building potential of ESD, and the significant outcomes that could be gained by early childhood centres, schools and higher education institutions forming alliances beyond their boundaries—because we cannot do this work alone.

The response to the final question about the capacity of ESD for **Promoting innovation** in curriculum was perhaps the most surprising, but when compared with the idea of enriching the curriculum the reason for this becomes clear. Promoting innovation in curriculum was understood by educators as involving changing the practices across educational systems, rather than as an addition to the curriculum implied by enrichment. They discussed the challenges of such change in the traditional approaches of most teachers and the emphasis on standardised testing in current school systems. Innovation was seen to involve seeing curriculum through a new lens, or as one educator put it, they need to be able to ‘construct a program, disintegrate it, tear it apart; have all of those learning outcomes and those identified, and then be able to kind of reconstruct it coherently’. Nevertheless they were able to provide some outstanding examples of curriculum innovation where whole school changes were made, and outcomes were of the kind that gives one hope for a better world.
References


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Inside back cover