**Draft May 24, 2015 - final**

# The Contributions of

# Education for Sustainable Development (ESD)

# To Quality Education

# A Synthesis of an International Research Project



**Cover image:** *Balancing Act*. Reprinted with permission from Jens Galschiot/[Gallery Galschiot](http://www.aidoh.dk/?categoryID=3). <http://www.aidoh.dk/>

*This sculpture called The Balancing Act depicts the difficulty of humanity trying to learn to precariously balance itself atop a flexible pole reminds me of the complexity of sustainability. To me it is a powerful symbol of ESD – trying to learn to balance social, environmental, and economic issues to create a more sustainable future for all.*

Charles Hopkins, Research Leader

*“For years, excellence in a few core disciplines has often been perceived as the purpose of education. The time has come for all education systems, from preschool to higher education, to revisit and clarify their mission and goals. Surely contributing to a sustainable future for all must be reflected in the goals of quality education systems."*

Charles Hopkins, 2014

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**1. Executive Summary**

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| The results of this research into the relationship between Education for Sustainable Development (ESD) and Quality Education further proves the conclusions in 'Shaping the Future We Want'- final report on the UN Decade for ESD, i.e. that ESD facilitates interactive, learner-driven pedagogies. “ESD is influencing learning and advancing approaches that help learners to ask questions, analyze, think critically and make decisions in collaboration with others.” The report also states, “research is beginning to suggest that students who learn through these methods, together with the content of sustainable development, develop greater awareness of and responsibility for the world around them”. The findings of this research prove this UNESCO conclusion is indeed true and the benefits are actually much broader and helpful.  For years, excellence in a few core disciplines has often mistakenly been perceived as the purpose of education. The Aichi-Nagoya Declaration 2014 on ESD invites all education systems, from preschool to higher education, to revisit and clarify their purpose, mission and goals. School systems that are striving to deliver not only excellence in the traditional disciplines but also an education to prepare their graduates to thrive in the 21st Century should consider re-purposing to include the goal of educating for a sustainable future. Now, as a result of this research, no longer is there a worry that reorienting to address the economic, social and environmental issues at the local and global level will detract from their scholastic performance in the traditional disciplines.  Qualitative research was conducted in selected exemplary ESD oriented school systems in 18 largely high-scoring Programme for International Student Assessment (PISA) countries on four continents. The results led to numerous findings of how ESD contributes to a broad range of attributes associated with education quality. Researchers focusing on five core questions interviewed a variety of school system administrators, school leaders, teachers, students and in some cases parents. They found a wide variety of attributes and student outcomes widely associated with quality education.  Some examples include:  *Academic performance increased in ESD schools in many high-scoring PISA countries. ESD promotes acquisition of additional relevant knowledge and skills, as well as perspectives and values.*  *ESD gives more meaning to curricula, which leads students to be more engaged, committed, and self-confident.*  *ESD helps prepare students for an uncertain future by instilling flexible competencies, empathy and creativity*  *ESD schools engage with local communities by opening opportunities for students, parents, and others, to be involved in meaningful ways.*  *ESD has prompted innovative approaches to teaching, learning and assessment. Teachers keep learning throughout their careers.*  Overarching findings showed that education is more effective when global and local sustainability issues are integrated throughout the curriculum. Results also show that when curricula is delivered in local social, economic, and environmental contexts, traditional learning outcomes are maintained or even heightened while additional, enhanced, and transformational learning occurs to both primary and secondary students. All of these attributes coincide with higher order skill levels in the PISA tests. Thus, ESD and PISA are synergistic in many ways. | ESD is helping learners, analyze, think critically and make decisions in collaboration with others  Excellence in a few core disciplines is not the purpose of a quality education.  ESD and PISA are synergistic in many ways. |

**2. Background and Introduction to Education for Sustainable Development and Quality Education**

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| In April 2013, the UNESCO Chair in Reorienting Teacher Education to Address Sustainability at York University (Toronto, Canada), in collaboration with the Working Committee on ESD of the Chinese National Commission to UNESCO, invited researchers from primarily high-scoring Programme for International Student Assessment (PISA) countries to discern if and how ESD contributed to a quality education. Their research focused on school systems in their countries that had significantly addressed ESD over a number of years. The researchers studied ESD implementation in specific locations in eighteen countries[[1]](#footnote-1) where significant work on implementing ESD had occurred. They interviewed and reported their findings based on the five essential questions outlined later in the report.  The goal of this paper is to broadly share the results of research carried out mainly in high-scoring (PISA) countries, showing that when curricula include sustainability content – delivered in terms of local, social, economic, and environmental contexts – teaching and learning transforms primary and secondary education. The research also provides evidence that while ESD pedagogies successfully equip students with knowledge and skills, it also develops perspectives and values necessary to foster and maintain sustainable societies. While ESD involves specific traditional content, it is also a way of thinking and should be viewed holistically and systematically.  **2.1 The Concept of Quality in Education**  Every ministry of education and school jurisdiction around the world struggles with the same question: How do we provide quality education in a way that prepares children and youth to live and thrive in a rapidly changing world? It is difficult to predict what today’s students will need to know, do and value so that they can personally fulfil their lives and become tomorrow’s informed citizens/leaders who contribute to the well-being of their communities and the planet.  The concept of quality recurs frequently in educational discourse yet; the definition of quality education is constantly evolving and is always contextual. There is no singular definition, list of criteria, definitive curriculum, nor list of topics that comprise a quality education. It is a dynamic concept that changes and evolves with time and is modified according to social, economic and environmental contexts. Because quality education must be locally relevant and culturally appropriate, quality education will take many forms around the world (UNESCO 2005, p. 1).  In today’s interconnected world, quality information is easily acquired. Facts that professionals once knew as a result of years of study are now readily available on the Internet. However, access is not the whole picture. Today’s education requires knowing what to do with the information – how to analyse it, make sense of its abundance and complexity, and cooperate with others to synthesize the data and communicate the results. Consequently, quality education is no longer primarily fact-based.  As fact-based education becomes out-dated, policy makers debate the basis for transforming their education systems. Yet, this transformation requires more than a vision of what is possible: It requires evidence that will justify such changes. Evidence-based decision-making is both encouraged and of growing importance in the formal education community (OECD 2007). The outcome of this study provides evidence that (ESD) does not harm traditional perceptions of education quality but also contributes in many additionally relevant ways.  **2.2 The Concept of Education for Sustainable Development**  The history of ESD links to the 1992 United Nations Conference on Environment and Development (UNCED), where 178 Member States agreed on a framework for action in chapter 36 of Agenda 21. Agenda 21 recognized that education, training and public awareness are critical tools for the implementation of sustainable development; and called for ‘reorienting education towards sustainable development’ (UN 1992). UNESCO was assigned as task manager for chapter 36 (UNESCO 2014).  The original concept of ESD was simply to utilize the world’s existing education systems, public awareness systems and training systems as efficient means of implementing sustainable development. There are four main thrusts or spheres of activity that comprise ESD:   1. **Improving access to and retention in quality education**   While this thrust is synergistic with Education for All and identified in Goal 4 of the proposed Sustainable Development Goals, ESD is not limited to developing nations. Defining the concept of quality and appropriateness of their education systems is a crucial target for all nations. This first thrust is a major difference between ESD and individual disciplines or initiatives such as peace education, development education or global education.   1. **Reorienting existing educational programs to address sustainability**   Most education systems are currently designed for development as opposed to sustainable development. Often the most highly educated societies create some of the gravest threats to a sustainable future. The Aichi-Nagoya Declaration (2014) of the UNESCO World Conference on ESD and reaffirmed in the UN General Assembly calls on nations to re-visit the aims, and underlying values of their education systems in the context of shifting to a new vision of implementing sustainable development.   1. **Increasing public understanding and awareness of sustainability**   Nations realize that there is a need for a knowledgeable citizenry who is not only aware of sustainable development but understands their role in enabling its implementation. Governments need political support to bring in enlightened legislation while corporations need consumers who will understand the implications of their purchases in the larger picture. These are important components embedded in the rights and responsibilities of the new Global Citizen.   1. **Professional development, in-service and training to advance sustainability across all sectors**   The greening of workforces accompanied with new technology, legislation, regulatory codes etc. ensures that all workers and managers in both the private and public sector will need access to life-long learning opportunities. This fourth non-formal education/training thrust of ESD needs new synergy with formal education institutions to ensure that those entering the workforce arrive with the latest and most effective skillsets.  ESD is based on values of justice, equity, tolerance, sufficiency and responsibility. It promotes gender equality, social cohesion and poverty reduction and emphasizes care, integrity and honesty, as articulated in the Earth Charter. ESD is underpinned by principles that support sustainable living, democracy and human well-being. Environmental protection and restoration, natural resource conservation and sustainable use, addressing unsustainable production and consumption patterns and the creation of just and peaceful societies are also important principles underpinning ESD.  ESD has been perceived in different forms by governments, educators and NGO practitioners. Key sustainable development issues are integrated into teaching and learning. Today these include themes such as: climate change, disaster risk reduction, sustainable livelihoods, employability, sustainable consumption and production, biodiversity, overcoming racism and exclusion, and poverty reduction. Because these issues are characterized by uncertainty, complexity and a high degree of systemic interconnection, ESD facilitates participatory teaching and learning methods like critical thinking, imagining future scenarios and making decisions in a collaborative way in order to empower learners to take action for sustainable development.  Essential elements of ESD include learning to; ask critical questions; to clarify one’s own values; to envision more positive and sustainable futures; to think systemically to respond through applied learning; and, learning to explore dialectic between tradition and innovation (UNESCO 2011, p. 8).  The perception of ESD has shifted and broadened and has influenced parallel debates on rights and needs for quality education as fundamental to human advancement. There is now growing consensus that what constitutes quality education should be considered within the context of the overall purpose of education. It is now more widely understood that quality includes but is not only about access or instilling basic competencies, such as literacy and numeracy. Rather, it encompasses relevance, purpose, methods, outcomes and content of education as well, supporting learners to adopt lifelong values that underpin sustainability.  To read more of the concept and history of ESD, an excellent UNESCO document is:  *The Education for Sustainable Development Sourcebook.* <http://unesdoc.unesco.org/images/0021/002154/215431e.pdf> | ESD also develops perspectives and values necessary to foster and maintain sustainable societies.  It is difficult to predict what today’s students will need to know, do and value to thrive later in the 21st Century.  Today’s education requires knowing what to do with data and information—how to analyse it, make sense of its abundance and complexity.  ESD is a purpose of education, utilizing the world’s existing education, public awareness and training systems as efficient means of implementing sustainable development.  ESD is underpinned by principles that support sustainable living, democracy and human well-being.  Since sustainability issues are characterized by uncertainty, complexity and a high degree of systemic interconnection, ESD pedagogy facilitates participatory teaching and learning methods. |

**3. The Contributions of Education for Sustainable Development to Quality Education (Synthesis Report)**

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| **3.1 Objectives** *The objective of this paper is to explore if school systems that systemically reorient to address education for a sustainable development (ESD) are still able to deliver a quality education in the traditional sense. In other words, does the call by the UN and* UNESCO *in the Aichi-Nagoya Declaration on ESD to revisit the purpose of education and reorient systems to address sustainability threaten the current view of education quality? Secondly, the research sought evidence that there was sufficient available data to be found if a major research program on this topic were to be launched.* **3.2 Current situation** Since education, public awareness and training programs were identified as a crucial means of implementing a sustainable future in Agenda 21, the work program of the 1992 Earth Summit in Rio de Janeiro there has been a disproportionate lack of response by governments. The need for ESD has again been identified, by governments at the UNESCO World Conference on ESD in Aichi-Nagoya where Ministers of Education from over 75 countries adopted the Aichi-Nagoya Declaration (2014) on ESD that calls for governments of UNESCO Member States to “review the purposes and values that underpin education, assess the extent to which education policy and curricula are achieving the goals of ESD.” The UN General Assembly has now accepted the Declaration and a new Global Action Programme on ESD (GAP) led by UNESCO has been endorsed.  However, some nations feel that ESD will conflict with currently established formal education targets such as improving PISA and/or other existing international quality assurance scores. Fortunately, many schools and school systems that have already embedded the concepts of ESD throughout their policies, practices, and curricula have reported overall improvement across a number of quality indicators. In addition, improvements in student academic achievement often accompany improvements in other areas such as attendance, student intellectual engagement, and student/teacher relationships. **3.3 Sustainability as an Integrated Purpose of Education**  Results show that when sustainability is an integrated purpose of education rather than an isolated piece of content matter, the learning is deeper and more meaningful. As a purpose, of the system ESD provides a common vision to administrators, teachers, and students. Sustainability infuses relevance across the curriculum, giving students concrete examples of abstract concepts. The opportunity to work with local and practical examples in turn increases student engagement (UNESCO 2012).  Results show that the sustainability content in curricula enables students to investigate and learn about local and global threats to the planet and humanity. Although its content differs from place to place, in general, a quality education contains knowledge, skills, perspectives and values related to sustainability as well as analysis of and solutions to its threats. Research shows that when sustainability content in curricula is delivered in terms of local social, economic and environmental contexts, learning proves transformational to primary and secondary education. **3.4 ESD Pedagogies** Research results show that the transformation of primary and secondary education is shaped by ESD pedagogies as much as it is by the sustainability content. Pedagogies associated with ESD stimulate students to ask questions, analyse, think critically, and make good decisions. Such pedagogies move from teacher-centred to student-centred lessons and from rote memorisation to participatory learning.  ESD pedagogies are often place-based or issue-based. They encourage critical thinking, social critique, and analyses of local contexts. They involve discussion, analysis and application of values. ESD pedagogies draw upon different disciplines, including the arts, using drama, play, music, design, and drawing to stimulate creativity and imagine alternative futures. They work towards positive change and help students to develop a sense of social justice and self-efficacy as community members (UNESCO 2012, p. 15).  Tilbury, in an international literature review, identified essential ESD learning processes that encouraged learners to “ask critical reflective questions, clarify values, envision more positive futures, think systematically, respond through applied learning, and explore the dialectic between tradition and innovation” (UNESCO 2011, p.29). Many applied ESD pedagogies also promote cooperation and collaboration instead of competition and isolated student effort. ESD also addressed equity in the classroom Admittedly, many proven pedagogies that are used by ESD have been in practice within different disciplinary traditions for years. These pedagogies are now in use in interdisciplinary contexts and applied to pressing issues of sustainability. This study shows that ESD pedagogies do more than facilitate learning of knowledge–they promote learning of skills, perspectives, and values that sustainable societies require. **3.5 Research Design**  The methodological framework for this study is a narrative inquiry. Several education leaders and researchers developed five questions as being crucial to the further adoption of ESD. These five questions were then posed to over 100 senior education leaders who had already significantly reoriented their school systems over a period of several years to hear their opinions of the outcomes in terms of the five questions. The paper synthesizes reported experiences of education leaders, teachers and students in these unique ESD hotspots in 18 countries. The findings do not represent ESD from a national perspective but rather are unique examples of well-practiced ESD. Their findings were then put into a table format for ease of seeing and understanding the wide range of ESD contributions to an appropriate quality education as expressed by the experienced education leaders. To further accentuate the wide range of ESD perceptions and findings some examples of researchers quotes follow each chart. **3.6 Research Plan**  In April 2013, the UNESCO Chair in Reorienting Teacher Education to Address Sustainability, at York University (Toronto, Canada), in collaboration with the Working Committee on ESD of the Chinese National Commission to UNESCO, invited researchers primarily from high-scoring Programme for International Student Assessment (PISA) countries to conduct research related to ESD’s contributions to a quality education in their respective countries. They were to focus on school systems that had significantly addressed and embedded ESD in their schools over a number of years. In May 2014, most of the researchers presented their preliminary findings at a research seminar in Beijing. The other researchers submitted their findings directly. The researchers focused on schools that had moved on from teaching **about** sustainability to using their system to educate **for** sustainability. In total, findings from school systems in eighteen countries (Australia, Belgium, Canada, China, Estonia, Finland, Germany, Japan, Korea, Latvia, Mongolia, Netherlands, Peru, Scotland, Sweden, Taiwan, The United Kingdom, and The United States of America) are included in the project.  It is important to note that these reports feature schools or participants within each country; they do not necessarily represent the whole panorama within the country and should not be interpreted as national reports. Researchers studied ESD implementation in their respective jurisdictions and reported their findings based on the following five essential questions presented to them:   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?*   When studying the daily operations of schools and education systems, some overlap in the answers to some of the questions arose. The lack of compartmentalisation is indicative of ESD content and pedagogies being best addressed precisely when interdisciplinary approaches are used. Indeed, the lack of compartmentalisation emerges in some researchers’ findings; they sometimes present somewhat similar results under more than one question. We have taken the liberty to place the results under only one of the five categories of questions. Several reports also highlight specific challenges in implementing ESD in schools. In presenting these challenges, it is our intention to inform educators, administrators and other stakeholders on important aspects that require specific attention. | Member States to “review the purposes and values that underpin education, and assess the extent to which education policy and curricula are achieving the goals of ESD.”  School systems have reported overall improvement across a number of quality indicators.  When curricula contents are delivered in terms of social, economic and environmental contexts, learning proves transformational.  ESD helps students to develop a sense of social justice and self-efficacy as community members.  The reports were based on over 100 interviews with educational leaders in eighteen countries who had significantly reoriented their school systems to address ESD  The findings should not be interpreted as national reports but rather as specific case studies. |

### 4. Research Questions and Findings

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| ***4.1 Research Question 1: How can ESD update and improve educational purposes and outcomes?***  *This question pertains to traditional perceptions of quality and better outcomes. Researchers provide evidence showing that ESD improves test scores and helps achieve other desired outcomes such as improved student attendance and problem solving skills–outcomes typically associated with schooling. Some of these outcomes are academic in nature and sometimes measured by local, provincial/state, national and international standardised tests.*  Countries provided a variety of responses identifying how ESD can help increase academic performance. Research revealed that academic performance increased in schools that had reoriented their programs, policies and practices in eight countries, although there are no claims of a cause and effect relationship between the two factors. Yet it appears that students of many ESD schools developed stronger critical thinking skills, deeper understanding of the topics under study, better research skills, and acquired good preparation for the job market. Students in some countries also demonstrated excellent communication, writing, mathematical skills, problem solving skills, and abilities in forming and defending their opinions.  Interviewees of ESD schools did report that students and teachers alike gained many core skills, as indicated in the table below. No reports mention negative relationships between ESD implementation and student performance. |  |

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| **Core Findings** | **Countries** |
| Increased academic performance. | Australia, China, Estonia, Peru, Sweden, Netherlands, United Kingdom, United States |
| Stronger critical thinking skills, deeper understanding of the topics under study, and better research skills | Belgium, Canada, China, Estonia, Finland, Germany, Japan, Mongolia, Peru, Scotland, Sweden, Netherlands, United Kingdom |
| More prepared for the “green” job market | Belgium, Latvia, Sweden |
| Demonstration of excellent skills in communication, writing and mathematics | Finland, Germany, Scotland |
| Increased problem solving skills | Belgium, Korea |
| Development of abilities in forming and defending their opinions | Estonia |
| Enter university with excellent post-secondary studies preparation | Sweden |
| Contribute to creativity and character education | Japan, Korea |
| Student attendance rates increase in ESD schools | Belgium, Netherlands, United States |
| **Selected Interviewees’ Quotes:**  “ESD has a positive influence on learning and possibilities to take part in school affairs.” – Finland  “ESD allows students to improve their problem-solving skills as it focuses on actual practices as opposed to only learning theories.” – Korea  “The students are excited, they get far in terms of knowledge development and appreciate the contacts with the surrounding society. They work on something they perceive as important and real. ” – Sweden  “ESD is part of a larger process for “growing great people.” – United States  “I have seen test scores rise and student attendance improve and children who for disciplinary reasons are normally on the radar go off the radar” – Australia  “Students are only truly literate when they can read the world” – Canada | |  |

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| **4.2 Research Question 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. The focus here is on outcomes other than student performance, both of which are very often the stated goals of education systems. While outcomes, such as curricular relevance and student engagement, are rarely, if ever, formally measured, their importance is well established. Hence, they are included in this study.*  Responses to this question explored student, school, and systemic levels. At the student level, 12 countries report that students find the ESD approach increases the relevance of their learning content. Others report that ESD gives more meaning to school curricula when it is well adapted to local themes and priorities, creates more interesting learning contexts for students, and helps students recognize their roles in society. 11 countries reported that increased curricular relevance associated with ESD leads to increased student engagement and commitment, and, in some countries, to increased self-confidence, self-esteem, and self-awareness.  ESD approaches affect schools and school systems by leading to a comprehensive focus in school education and management plans, as well as a framework of competencies. In some cases, ESD is integrated and prescribed in the overall curricula and several syllabi throughout the basic education program; in others, an increase in the number of school projects related to ESD is indicated. In many cases, ESD curricular outcomes are integrated within the core disciplines of the school curricula and not forced on schools as an “add on” leading to greater impact than a simple supplement to the prescribed curriculum. Integrating ESD within school curricula leads to a focus on skills other than student performance, including the well-being of the person.  Note: Observations include responses from students as well as at the school and systemic levels. |  |

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| **Core Findings on Benefits for Students** | **Countries** |
| Increases the relevance of learning content | Australia, Belgium, Canada, China, Mongolia, Netherlands, Peru, Scotland, Sweden, Taiwan, United Kingdom, United States |
| Gives more meaning to school curricula that is well adapted to local themes and priorities, creating a more interesting learning context for students | Australia, Belgium, Canada, Japan, Netherlands, Scotland, Sweden, United States |
| Students recognize their roles in society | Korea, Taiwan |
| Increased student engagement and commitment | Canada, China, Germany, Japan, Latvia, Netherlands, Peru, Scotland, Sweden, Taiwan, United States |
| Increases in self-confidence, self-esteem, and self-awareness | Estonia, Finland, Germany, Korea, Latvia, Netherlands, Sweden, Taiwan |
| Fosters further wide engagement with ESD topics in students’ private lives, including life-long learning, informal learning and social entrepreneurship | Finland, Germany |
| Promotes students’ spiritual development and helps them treat their surrounding world and cultural heritage with sensitivity, care, and respect | Belgium, Latvia, Netherlands |
| Increase student influence on their education | Scotland, Sweden |
| Twinning schools in different countries increase empathy, understanding, stewardship and intellectual engagement | Canada |
| **Core Findings on Benefits for Schools** | **Countries** |
| Comprehensive focus on school education and management plans, as well as upon a framework of competencies | Finland, Japan, Taiwan |
| ESD is integrated and prescribed in the overall curricula and several syllabi throughout the basic education program | Latvia, Scotland, Sweden, Taiwan |
| Increases in number of school projects related to ESD | Belgium, Japan, Latvia, Sweden |
| Consideration of integrating the four UNESCO competencies (learning to know, to do, to be and to live together) into curriculum | Netherlands |
| ESD curricular outcomes are integrated within school curricula and not forced on schools as an “add on” – leading to greater impact than simple supplements to the prescribed curriculum | Canada, Estonia, Latvia, Peru, Taiwan, United States |
| Integrating ESD into school curricula leads to a focus on skills other than traditional student performance, adding to the well-being of the person | China, Germany, Korea, Latvia, Netherlands, United States |
| Provides reason and purpose for developing historical and geographical knowledge and skills | Peru |
| Value the inclusion of global environmental issues such as climate change adaptation, disaster preparedness, green economy, social justice, and global in curricula | Latvia, Sweden, Taiwan |

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| **Selected Interviewees’ Quotes:**  “ESD can provide a rich, exciting, engaging and relevant school curriculum by educators choosing contexts, choosing themes, choosing problems for kids to solve that are local and real.” – Australia  “The core idea and the practice of ESD will become the standards of quality education and quality learning, which are necessary for a sustainable future.” – China  “ESD improves the outcomes of education by putting emphasis not only on cognitive aspects of teaching but on developing the spiritual [so that] a person...treats the surrounding world, people, and cultural heritage with sensitivity, care, and respect.” – Latvia  “ESD encourages interdisciplinary and cross-curricular work, and when developed through the use of Inquiry Based Learning (IBL) strengthens research skills, questioning, risk-taking, critical thinking and collaborative learning.” – Peru  “Staff and pupils reflect on and debate the purposes of education and schooling and contribute to formulating and taking forward the school’s vision and values.” – Scotland  “Education for sustainability entails a very different approach than education about sustainability.” – United States |  |

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| ***4.3 Research Question 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 today’s students for an uncertain future and to successfully thrive regardless of the complexity of future challenges to global sustainability. ESD provides students with opportunities to identify relevant issues and work through the process of finding appropriate solutions. It is feasible to implement strategies that help students to observe the complex connections between local and global issues, to appreciate entire systems, and to question and engage in focused inquiry. The more practice students have in engaging today’s real world issues, the more likely they will be able to address and actually thrive with the problems and opportunities they will face in the future. They will learn to anticipate and prevent issues rather than be forced to constantly react. This approach is about hope and positive compassion.*  Research shows that ESD contributes to students’ knowledge, skills, and values in a variety of ways. ESD contributes to developing students’ abilities and confidence to adapt to evolving complex situations, developing better thinking skills, problem-solving skills and values for sustainable development. This is accomplished while understanding that sustainability is not solely about the environment, but primarily about the reconciliation between environmental sustainability and social justice and economic development. ESD helps students develop competencies (facts and understanding, skills and attitudes) through constant interaction and involvement. ESD also helps students recognize inter-relations and interconnections in dilemmas and positions and to incorporate such perspectives when addressing issues. Students following ESD curricula become attentive to global issues, learn to act as responsible citizens locally and globally with respect to ESD issues, build an empathetic outlook and commitment, and participate in democratic decision-making. Again, many of these attributes are coherent with higher levels of PISA. |  |

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| **Core Findings on Benefits for Students** | **Countries** |
| Learn to adapt to evolving complex situations | Finland, Korea Latvia, Mongolia, Netherlands, Scotland, Sweden |
| Better systems-thinking skills | Finland, Japan, Mongolia, Sweden, United States |
| Increases in problem-solving skills | Australia, Belgium, Canada, China, Estonia, Finland, Japan, Korea, Latvia, Sweden, United Kingdom |
| Express values for sustainable development | Latvia, Taiwan |
| Increased understanding that sustainability is a reconciliation between environmental sustainability and human development | Belgium, Peru |
| Develop competencies (facts and understanding, skills and attitudes) through constant interaction and evolvement | Germany, Latvia, Sweden |
| Recognize inter-relations and interconnections in ESD issues and positions | Belgium, Finland, Germany, Japan, Latvia, Peru, Scotland, Sweden, Taiwan, United Kingdom, United States |
| Become more attentive to global issues and learn to act as responsible citizens locally and globally with respect to ESD issues | Belgium, Germany, Korea, Latvia, Peru, Scotland, Sweden, Taiwan, United Kingdom |
| Build an empathetic outlook and commitment to sustainability | Peru |
| Participate in democratic decision-making | Latvia, Mongolia |
| Inspired to act and create solutions for the future | Australia, Belgium, Canada, Korea, Latvia, Netherlands, Sweden |
| Become future leaders and managers | Canada, United Kingdom |
| Fosters a sense of hope, appreciation and respect for humans and nature | Latvia, Netherlands, Sweden |
| Curriculum and textbook analyses show that ESD led to an increased emphasis on skills and competencies rather than values which remains a need | Mongolia |

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| **Selected Interviewees’ Quotes:**  “ESD provides students with opportunities to face complex issues dealing with a wide range of projects, especially in middle and high schools. With club activities and other extra-curricular activities, students can further develop problem-solving skills and values.” – Korea  “ESD helps prepare our students for a sustainable future by ensuring that they are environmentally responsible, globally aware, economically astute, socially responsible, and technologically proficient citizens who are capable of coping with the emerging challenges and opportunities we are facing now and will continue to face in the future.” – Canada  “Education for Sustainable Development (ESD) is the way students change their own lifestyles, values, and behaviour toward building a sustainable future.” – Japan  “ESD shares many similarities with entrepreneurial pursuits. The ability to deal with problems from different perspectives, to creatively find solutions and move forward are common features.” – Sweden  “In addition to knowledge which is emphasized by most subjects, ESD highlights the importance of skills for action and values for SD.” – Taiwan  “Society does not need people that know how to save water. It needs people that actually do save water.” – Netherlands  “The more practice students have with solving real world problems today, the more likely they will be able to address the problems they face in the future.” – United States |  |

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| ***4.4 Research Question 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. Students need opportunities to become meaningfully and authentically engaged with community issues. Schools focussing on ESD can help create these opportunities. When students are offered meaningful and relevant learning opportunities, they become increasingly engaged, which often increases attendance and academic achievement. This logical sequence exemplifies the strong link between the five questions in this report.*  Research shows that ESD helps connect schools and stakeholders within the community. When students engage in local issues, opportunities arise for them to learn more about their community; in turn, this provides a way for community members to become directly involved with the school. When students engage in community issues, communities take note and often invest more wisely in solutions. Such evidence is shown with respect to local communities, organizations, universities, local governments and UNESCO Associated Schools that address ESD in a substantial manner. Reports show that ESD schools contribute to their communities and have become role models for other schools. In some cases, ESD schools have strengthened collaboration between schools, helped reinforce good relations between schools and parents, and improved principals’ philosophies of school management. ESD school projects are increasingly mentioned in local media and result in more student exchanges between countries. |  |

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| **Core Findings on Benefits of ESD Schools for Stakeholders** | **Countries** |
| Increased resources and benefits for local communities, organisations, universities, local governments and UNESCO | Belgium, Canada, Germany, Japan, Korea, Latvia, Mongolia, Netherlands, Peru, Scotland, United States |
| Contribute to their communities | Australia, Belgium, Korea, Sweden |
| Become role models for other schools | Germany |
| Strengthen collaboration between schools | Estonia, Peru |
| Reinforce relations between schools and parents | Korea, Latvia, Netherlands, Peru |
| Improve principals’ philosophies of school management | China |
| ESD school projects are increasingly mentioned in local media | Belgium, Sweden |
| More student exchanges are occurring between countries | Belgium, Latvia |
| Strengthening learning outcomes: Through partnerships, “Learning that takes place in local settings contributes to improved thinking and problems solving skills. Decision-making in authentic contexts is most relevant to learners.” | Canada |

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| **Selected Interviewees’ Quotes:**  “ESD makes students understand the importance of relationships, and how everyone and everything is connected. When we know each other and know our environment, the commitment to each other improves.” – Netherlands  “ESD must be locally relevant. In this way, schools are no more institutions separated from the real world, proposing abstract general knowledge, but become institutions active in the society, recognized as relevant stakeholders in the development of the community.” – Finland  “Educational institutions can be role models with regard to sustainable action and management.” – Germany  “Education for ESD motivates students to participate in community-oriented activities...involving them actively in the community activities.” – Latvia  “Staff demonstrates a highly developed understanding and awareness of the needs of their communities. Members of the community see the school as central to community life.” – Scotland  “Activities involving museums and local communities are good opportunities for students to better understand local society and environments. ESD activities involving local community role-players, led to reciprocity by helping improve partnerships between schools and local societies.” – Korea |  |

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| ***4.5 Research Question 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 in a way that helps them master the curricula. Most education systems strive to have students perform at very high levels regardless of the measure used to determine student performance. It is well known that the most important factor in student learning is quality teaching. Therefore, having ESD contribute to improved teaching makes a strong argument to maintain and even augment its role in education systems. Research results presented here support this view.*  Research shows ESD is best implemented when issues are addressed in multidisciplinary ways and across curricula. For example, ESD is the driving force in Beijing’s Shijingshan Education Commission alignment of its educational vision, curriculum, teacher training, and creation of a “campus culture” that leads to better educational outcomes. Mongolia also reported analysing textbooks, which include elements of the five questions used in this study, and then developing numerous ESD-related policy documents related to the subjects.  Schools in 14 countries report that ESD has prompted innovative teaching approaches and methodologies, such as project-based learning, experiential education, cooperative and peer learning. ESD has also increased the use of information technologies. In some cases, incorporating ESD into education systems has developed and increased the use of new educational materials. The implementation of innovative teaching approaches and materials has in turn increased the variety of assessment methods, assessment of competencies, and deeper knowledge. This evolution has led to new standards to evaluate schools in some countries.  The focus in many ESD schools is changing from teaching to learning as teachers understand their role as coaches and change agents. Teachers report authentic learning experiences for themselves and their students in a number of countries; some also report that they have learned from their students. In the high PISA scoring country of Finland, there are reported cases of teachers and students designing school activities collaboratively. Such evolutions have prompted more enthusiastic and engaged teachers who are increasingly aware of their own lifelong learning opportunities. |  |

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| **Core Findings on Benefits of ESD on Innovation** | **Countries** |
| Prompted innovative teaching approaches and methodologies, i.e. project-based learning, cooperative and peer learning, and feedback processes | Australia, Belgium, Canada, China, Germany, Japan, Korea, Latvia, Mongolia, Peru, Sweden, Taiwan, United Kingdom, United States |
| Increased the purposeful use of ICT | Estonia, Japan, Latvia, Sweden |
| Increased development and use of new educational materials | Belgium, Japan, Latvia, Peru |
| Increased variety of assessment methods | Estonia, Peru, Sweden, United States |
| The assessment of competencies and deeper knowledge that has led to new standards for evaluating schools | China, Germany |
| The focus in many ESD schools is changing from teaching to learning | Germany, Latvia, Peru |
| Teachers understand their role as coaches and change agents, and are no longer constrained to traditional roles | Australia, Belgium, Latvia |
| Teachers report authentic learning experiences for themselves and their students | Canada, Korea, Peru, United Kingdom, United States |
| Teachers and students design school activities collaboratively | Finland, Peru |
| More enthusiastic and engaged teachers and school administrators | Canada, Peru |
| Increasing awareness of lifelong learning opportunities | Germany, Latvia, Peru |
| Teachers confirm the holistic paradigm is more efficient to reach curriculum goals and promote broad knowledge | Belgium, Japan, Peru, Sweden, United States |
| When collaborating on interdisciplinary projects, multidisciplinary approaches enable teachers to learn about curriculum content in areas outside of their specialty | Belgium, Germany, Sweden |
| Need for improved teacher training regarding values and awareness about sustainability and sustainable development | Canada, Germany, Japan, Korea, Latvia, Peru |
| Development in teacher abilities cultivate student values and understandings regarding sustainable development | China, Latvia |

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| **Selected Interviewees’ Quotes**:  “As with any new initiative, the key to success lies in teacher capacity.” – Canada  “The implementation of ESD promotes and supports the collaboration of science and practice (e.g. action research).” – Germany  “ESD provides an integrated perspective on education. However, teacher capacity is important when it comes to adopting the ESD approach in classes.” – Korea  “The teachers believe in us, they look at us as competent adults and not as incompetent 17 year-olds. That gives you confidence.” – Sweden |  |

**5. Challenges and next steps, recommendations for further research**

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| In the final report of the UNDESD, *Shaping the Future We Want UN Decade of Education for Sustainable Development,* UNESCO Member States and other stakeholders indicated considerable challenges remain. These challenges indicated in the above UNESCO report include:   * the need for further alignment of education and sustainable development sectors; * the need to do more work for institutionalizing ESD – to ensure strong political support to implement ESD on a systemic level; * the need for more research, monitoring and evaluation to develop and prove the effectiveness of ESD good practices; * innovation in pedagogy.   This research project also identified a number of cautions and next steps implementing and broadening ESD across countries. The findings highlighted in the research can serve as a framework for next steps in ESD:   1. **ESD is to be recognized as an integral element of quality education for the 21st Century, rather than an add-on outcome.**   It is important to fully integrate ESD in curricula across all subjects (Australia, Japan, Mongolia, Korea, United States) and within a clear framework (Sweden). Failure to do so could prompt ESD to be considered as one of several competing priorities (Japan), as deviating from already existing priorities (Peru), or to be perceived as imposed on schools (Germany).     1. **Professional development is necessary to ensure that ESD policy measures can be implemented in the classroom.**   Student learning suffers if teachers fail to understand ESD. ESD involves knowledge in several disciplines, often beyond teachers’ areas of specialization (Canada, United States). Some teachers may reduce ESD to recycling and green projects (Australia, Peru) and may not emphasise sustainability in broader contexts. Others understand its complexity and the need for systems thinking, but they view ESD as an overwhelming challenge and responsibility (Germany). Still others do not understand it as important to their courses (Japan, Peru). These challenges underscore the difficulty in changing teachers’ values and behaviours. Thus, there is a need for a coherent system of professional development aligned with teacher education programs (Germany, Mongolia, Peru, United States) accompanied by quality teacher resources (United States).   1. **ESD will further flourish when school leaders adopt ESD management practices.**   With teacher education and training opportunities in place, there is also a need for strong educational leadership of principals and school administrators, including high expectations of teachers accompanied with management’s support (Sweden). School administrators also need to adopt new management practices and structures, such as different time schedules in schools (Germany, Korea). The “whole institution approach as sought by the UNESCO GAP requires policy, leadership and designated resources.   1. **ESD does have great impact on broad academic outcomes, including PISA and other assessment scores, but more research is needed to identify best practices.**   The challenges noted in this body of research are typical for new educational domains such as ESD; however, while difficult none are impossible to address. In fact, what is reported as challenging in some countries is reported as strengths in others. Thus, opportunities abound for the worldwide ESD community to share and learn from each other’s experiences and expertise. It is obvious that as agreed to by the Aichi-Nagoya Declaration, the document that informs the new UN Global Action Programme on ESD, countries need to revisit the goals of their education system. So too, just as content and pedagogy must be revised, our assessment and reporting procedures need revisiting and broadened. What is truly important to monitor, assess and report upon? The extent to which ESD can contribute to increased academic outcomes is unknown. Empirical research for rigorous evidence is needed.   1. **Communities could benefit from the infusion of ESD in their school systems.**   The current focus on education for the 21st Century is more centred on embracing IT and preparing young people for employment in the current workforce than designing a new economy that will be more sustainable. The ‘World Business Council for Sustainable Development’(WBCSD), has recently published a document entitled ‘*Vision 2050: the New Agenda for Business’*, which speaks of the need to create new business models that will be needed to replace the current unsustainable practices. Communities and societies that have little awareness of the problem let alone a generation who understand the basic concept and have the collaborative skills to address these complex issues will suffer. The challenge is to balance education systems knowledge, skills and values to address both greening the current economic structures while creating entirely new more sustainable models. |  |

### 6. Conclusion

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| **The objective of this research was to explore if school systems that systemically reorient to address a sustainable future through education for a sustainable development (ESD) are still able to deliver a quality education in the traditional sense. The answer was overwhelmingly yes.**  The call by the UN and UNESCO in the Aichi-Nagoya Declaration on ESD to revisit the purpose of education and reorient systems to address sustainability does not threaten the current view of education quality. Secondly, the research sought evidence that there was sufficient available data to be found if a major research program on this topic were to be launched. Again, the answer was that there is indeed available evidence.  The results of this research provide abundant evidence that education for sustainable development contributes in many ways to a quality education. Presented evidence shows that when the curriculum includes sustainability content – delivered in terms of local, social, economic and environmental contexts – teaching and learning transforms primary and secondary education in the context of personal and societal benefit. Research also provides evidence that ESD pedagogies do more than facilitate learning of knowledge. They promote learning of skills, perspectives and values necessary to foster and maintain sustainable societies.  As for the question of the feasibility of further research, this unfunded first attempt has proven that data is indeed readily available. Since ESD and quality are two extremely important objectives for all education systems there is a need for further on-going exploration. Evidence shows that, educating for sustainability entails a very different approach than simply education about sustainability. ESD must become an integrated purpose of our education systems. When this occurs, both our education systems and our nations will benefit.  It is our hope as initial volunteer researchers that future funded research programs will be undertaken at both the national and international scales. We also hope that the findings will also be shared so the reorienting of whole education systems as called for in the UNESCO Global Action Programme on ESD (GAP) may be undertaken as quickly, effectively and efficiently as possible.  Should ESD be given the priority and means for further development and implementation, education quality and effectiveness will improve across all countries, greatly enhancing the chances of a more sustainable future for all. | The results of this research provide abundant evidence that ESD contributes significantly to a quality education for the 21st Century.  If ESD becomes an integrated purpose of our education systems, both our education systems and our nations will benefit. |

### References

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| OECD. 2007. *Evidence in Education: Linking Research and Policy.* Paris: OECD. <http://www.oecd.org/edu/ceri/evidenceineducationlinkingresearchandpolicy.htm#1>  Tilbury, D. 2011. *Education for Sustainable Development: An Expert Review of Processes and Learning*. Paris: UNESCO. <http://unesdoc.unesco.org/images/0019/001914/191442e.pdf>  UNESCO. 2000. *The Dakar Framework for Action*. Paris: UNESCO. <http://unesdoc.unesco.org/images/0012/001211/121147e.pdf>  UNESCO. 2005. *Contributing to a More Sustainable Future: Quality Education, Life Skills and Education for Sustainable Development*. Paris: UNESCO. <http://unesdoc.unesco.org/images/0014/001410/141019e.pdf>  UNESCO. 2012. *The Education for Sustainable Development Sourcebook. Education for Sustainable Development in Action Learning and Training Tools.* No 4. Paris: UNESCO. <http://unesdoc.unesco.org/images/0021/002154/215431e.pdf>  UNESCO. 2014. *Aichi-Nagoya Declaration on ESD*, Paris: UNESCO <http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ERI/pdf/Aichi-Nagoya_Declaration_EN.pdf>  UNESCO. 2014. *Shaping the Future We Want UN Decade of Education for Sustainable Development (2005-2014) Final Report*. Paris: UNESCO  <http://unesdoc.unesco.org/images/0023/002301/230171e.pdf> |  |

### Contributors and Acknowledgements

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| The research project was led by C. Hopkins, UNESCO Chair on Reorienting Teacher Education to Address Sustainability, at York University in Toronto, Canada. R. McKeown provided the secretariat. Country reports were planned, researched and written by:  **Australia:** K. Malone, M. Sommerville  **Belgium:** W. Van Buggenhout  **Canada:** A. MacDiarmid, H. Creech  **China:** S. Gendong, W. Guiying, W. Qiaoling, S. Yun  **Estonia:** M. Vesson  **Finland:** P. Immonen, A. Nuutinen  **Germany:** U. Stoltenberg, V. Holz, K. Bruhn  **Japan:** T. Ichinose  **Korea:** S. Lee, S. Baek  **Latvia:** D. Iliško, I. Salite  **Mongolia:** J. Badrakh, T. Baljir  **Netherlands:** A. de Hammer, G. de Vries, J. Bot, H. Schweitzer, J. Kenter  **Peru:** J. Perrin, C. Stayte  **Scotland:** B. Morton, B. King, I. Menzies, M. Watson, M. Mackenzie, P. Higgins  **Sweden:** M. Persson, U. Lindqvist, T. Almgren, M. Bengtsson  **Taiwan:** T.C. Chang, J. Wang  **United Kingdom:** A. Finlayson  **United States:** V. Nolet  Y. Nonoyama-Tarumi and R. Laurie drafted the initial paper based upon the reports of the country researchers listed above. R. McKeown wrote the introduction. A. Glass assembled the executive summary. K. Smith and K. Kohl made editorial suggestions.  The final edit was by C. Hopkins. Contact information For information and inquiries about this report and the research project, please contact the research leader:  Charles Hopkins  UNESCO Chair on Reorienting Teacher Education to Address Sustainability  York University, Toronto, Canada  19 Grenadier Heights  Toronto, M65 2W5  Email: chopkins@edu.yorku.ca |  |

1. Countries included Australia, Belgium, Canada, China, England, Estonia, Finland, Germany, Japan, Korea, Latvia, Mongolia, Netherlands, Peru, Scotland, Sweden, Taiwan, and United States of America. [↑](#footnote-ref-1)