

Chapter 2

Teacher Education Around the World: ESD at the Heart of Education— Responsibilities and Opportunities Towards a Sustainable Future for All



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2.1 New Opportunities and Responsibilities for Teacher Education Institutions

Two years of negotiating and aligning more than 190 disparate national aspirations for sustainable development of the planet have culminated in several historic global accords that directly impact teacher education (TE) around the world, including *The Paris Agreement* (United Nations Framework Convention on Climate Change [UNFCCC] 2015); *Transforming Our World: The 2030 Agenda for Sustainable Development* (United Nations [UN] General Assembly 2015b) with the 17 Sustainable Development Goals (SDGs) at its core; and *Education 2030: Incheon Declaration and Framework for Action* (UNESCO 2015a) for the implementation of SDG 4 on “Education”. The vital role of education for the 2030 Agenda was highly recognised by all negotiating parties throughout the discussion process. Therefore, *Education 2030* had been agreed upon previously at the May 2015 World Education Forum in Incheon, Republic of Korea, by UNESCO members even before the 2030 Agenda with the SDGs was formally adopted by the UN General Assembly in September of the same year.

In November 2014, and in concert with the forthcoming *Education 2030* framework, the *Global Action Programme on Education for Sustainable Development* (commonly referred to as the GAP; UNESCO 2014b) had been launched, facilitating the continuing implementation of Education for Sustainable Development

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(ESD). To enable strategic focus and foster stakeholder commitment, the *GAP* identified the following “Priority Action Areas”: (a) advancing policy, (b) transforming learning and training environments, (c) building capacities of educators and trainers, (d) empowering and mobilising youth, and (e) accelerating sustainable solutions at the local level (UNESCO 2014b, p. 15).

While such multilateral agreements vary in their specific scope and framework, they are all consistent in counting on education systems as vital means of implementation and request them to meaningfully and effectively engage 69 million new teachers needed to achieve these education goals (UNESCO 2016a). TE institutions will play a crucial role in fulfilling these expectations.

The realisation that the current threats to future generations (e.g. climate change, biodiversity collapse, mass migration, and food and water shortages) will not be solved within the policy and power of any one nation acting in isolation has led countries to embark on this new journey together. The largest of the plans of action is the *2030 Agenda*—with its SDGs in a “five Ps” framework of people, planet, prosperity, peace, and partnership—that was adopted by 193 of the world’s nations.

Collectively, national leaders, with the endorsement of their governments, agreed in September 2015 to 17 ambitious goals (i.e. the SDGs) to be addressed between 2016 and 2030:

- Goal 1: End poverty in all its forms everywhere.
- Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
- Goal 3: Ensure healthy lives and promote well-being for all at all ages.
- Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- Goal 5: Achieve gender equality and empower all women and girls.
- Goal 6: Ensure availability and sustainable management of water and sanitation for all.
- Goal 7: Ensure access to affordable, reliable, sustainable, and modern energy for all.
- Goal 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.
- Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation.
- Goal 10: Reduce inequality within and among countries.
- Goal 11: Make cities and human settlements inclusive, safe, resilient, and sustainable.
- Goal 12: Ensure sustainable consumption and production patterns.
- Goal 13: Take urgent action to combat climate change and its impacts.
- Goal 14: Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.
- Goal 15: Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss.

- Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels.
- Goal 17: Strengthen the means of implementation and revitalise the global partnership for sustainable development. (UN General Assembly 2015b, p. 14)

Unlike the previous *Millennium Development Goals*, the SDGs now address all member states equally, and call for fundamental changes to transform our world by 2030. This is historic momentum and a cause for optimism. The relative ease of acceptance of the SDGs as a global development framework of action is one indicator of the awakened understanding for collective action, both internationally and intranationally. The importance and relevance of these new, overarching SDGs were evidenced not only by the advance agreement on the *Education 2030 Framework for Action*, but also by the secured funding for the *2030 Agenda* before its adoption, given that many of the world's finance ministers had already met in Addis Ababa, Ethiopia, in July 2015 (UN General Assembly 2015a).

An overall *Global Indicator Framework* for the SDGs, and targets of the *2030 Agenda for Sustainable Development*, was adopted in July 2017 as the final piece of the architecture for implementation by the UN General Assembly (2017). To facilitate this, many countries have now developed national strategies or are in the process of such undertakings.

Canada is among the fast-moving countries in this regard and, in spring 2017, acknowledged the contribution of the *2030 Agenda* and the SDGs in its third whole-of-government strategy plan called *Federal Sustainable Development Strategy for Canada 2016–2019* (Environment and Climate Change Canada 2017). This strategy, carried out under the *Federal Sustainable Development Act* of 2008, sets priorities for government institutions and voluntary contributors, and establishes goals and targets with necessary actions. However, much remains to be done to implement the SDGs by 2030. The corporate world—notably the larger multinationals that trade between nations—is aligning, and such efforts are recognised in particular by SDG 17 focusing on stronger commitment to partnership and cooperation.

Yet, in order to achieve the transition, small- to-medium-sized enterprises (SMEs) are crucial for the success of the *2030 Agenda* to address sustainability. Today, SMEs are not yet fully involved. Initiatives by UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training on supporting leaders and practitioners in greening technical and vocational training institutions that prepare the next workforce generation already address this target group. TE institutions preparing technical and vocational education and training instructors are urged to engage and provide changes in their academic programmes. Many cities, states, provinces, and regions now embed sustainability into their policies and everyday practices, and most major higher education institutions around the world now incorporate sustainability in their overall strategies, ranging from research priorities and curriculum content, to human resources and general operations of campuses.

2.2 Engaging with Educators to Step Forward

This resurgent, collective realignment presents an opportunity for all aspects of education to be repurposed and rejuvenated. At the same time, a renewed respect for the centrality of education in any strategy to enhance the future of humanity and the entire planet is possible. The underlying principle of education being recognised as a fundamental human right and enabling right (UNESCO 2015b) stresses the noble mandate that TE institutions around the world are trusted with. However, directly in-servicing and preparing education systems and their teachers to competently reorient their programmes and practices to address their students' current and future sustainability issues, as called for in SDG 4 and *Education 2030*, is overwhelming. Yet, it is so necessary. For this to occur, education leaders and the world's teachers must step forward and become engaged, because SDG 4 will be critical in the achievement of the SDGs and the *2030 Agenda* as a whole.

In Canada, due to the exclusive responsibility for education being relegated to provinces and territories, very little is mentioned about education in the *Federal Sustainable Development Strategy*. It is hoped that the Council of Ministers of Education, Canada (CMEC), will develop good practices and recommendations/guidelines for TE institutions on how to integrate the *2030 Agenda* and its SDGs into the education and training systems in all provinces and territories, helping to maintain Canada's high education standards as compared to other systems worldwide. SDG 4 on Education states: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (UN General Assembly 2015b, p. 17). SDG 4 encompasses seven targets and three specific means of implementation, including:

1. Completely free primary and secondary education for all.
2. Access to early childhood education and care.
3. Affordable quality technical, vocational, tertiary, and university education.
4. Skills for training, employment, and entrepreneurship.
5. The elimination of gender disparities ensuring equal access to all forms of education.
6. Ensuring all youth and "most" adults have numeracy and literacy skills.
7. The knowledge and skills for sustainable development. (UN General Assembly 2015b, p. 17)

To further monitor SDG 4 and *Education 2030*, the ministers at the 2015 UNESCO World Education Summit meeting in Incheon, Korea, entrusted UNESCO with the leadership and coordination of SDG 4 and the *Education 2030* framework and mandated UNESCO to provide independent tracking and reporting of their nations' progress in meeting the education targets (UNESCO 2016b). This system, called the *Global Education Monitoring Report* (GEM Report), was put into operation in 2016, and ESD is being monitored not only as a part of SDG 4 but also as an essential component within many other SDGs, as a crucial means of implementation. ESD is either directly or indirectly mentioned in both the intent and the indicators of the 10 targets in SDG 4.

The first report in 2016 stated that only 8% of 66 countries surveyed integrated sustainable development in TE, up from only 2% in 2005 (UNESCO 2016c). A recommendation regarding ESD was that stronger efforts are urgently needed to assess concepts inherent in ESD and global citizenship for teacher preparation and professional development.

As stated earlier, education in the SDGs is also explicitly linked with other goals within the *2030 Agenda* in one way or another. For example:

- SDG 3 Health and Well-Being (target 3.7): By 2030, ensure universal access to sexual and reproductive healthcare services, including for family planning, information, and education, and the integration of reproductive health into national strategies and programmes.
- SDG 5 Gender Equality (target 5.6): Number of countries with laws and regulations that guarantee women aged 15–49 years access to sexual and reproductive healthcare, information, and education.
- SDG 8 Decent Work and Economic Growth (target 8.6): By 2020, substantially reduce the proportion of youth not in employment, education, or training.
- SDG 12 Responsible Consumption & Production (target 12.8): By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.
- SDG 13 Climate Change Mitigation (target 13.3): Improve education, awareness raising, and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning. (UN General Assembly 2015b, pp. 16–23)

Today, many of the world’s education ministers see their key role in achieving a more sustainable future by envisioning ESD as a purpose of the overall education system, not only building on environmental, antiracist, and economic education but, more importantly, reorienting all core disciplines, and revisiting the values and ethics of the “hidden” curriculum.

2.3 The Momentum of Change: ESD Recognised as a Purpose of Quality Education

Fortunately, comprehending ESD as a purpose of education is a significant change from the very early attempts to address sustainability within formal education. Following the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, education systems did not heed the call that education is crucial to the implementation of sustainable development targets (UN Conference on Environment and Development [UNCED] 1992). Education became known as the “forgotten priority”. Post Rio, ESD engagement came largely from ministers of the environment and was often presented or perceived as a newer, yet similar, form of environmental education (EE).

The world's perspective on ESD and education systems only recently changed towards the better. At the close of the *United Nations Decade of Education for Sustainable Development 2005–2014* (UNESCO 2005)—a programme that had sought to mobilise the educational resources of the world to help create a more sustainable future (UN General Assembly 2004)—the largest gathering of education ministers and vice-ministers to date was held in Japan, in November 2014. As part of the decade's concluding *Aichi-Nagoya Declaration on Education for Sustainable Development* (UNESCO 2014a), member states reaffirmed that ESD was a vital means of implementation for sustainable development, and launched the *GAP* on ESD.

In the *Aichi-Nagoya Declaration*, UNESCO member states identified their education systems' roles in implementing sustainable development:

Reaffirming ESD as a vital means of implementation for sustainable development, as recognised in intergovernmental agreements on climate change (Article 6 of the UN Framework Convention on Climate Change and its Doha work programme), biodiversity (Article 13 of the Convention on Biological Diversity and its work programmes and related decisions), disaster risk reduction (Hyogo Framework for Action 2005–2015), sustainable consumption and production (Sustainable Lifestyles and Education Programme of the 10-Year Framework of Programmes on Sustainable Consumption and Production 2012–2021), and children's rights (Articles 24[2], 28 and 29 of the UN Convention on the Rights of the Child), among many others. (UNESCO 2014a, p. 1)

Additionally, it was recognised that ESD could be seen in various ways: as sustainability education, joining a host of other societal issues that needed addressing; as another discipline to be added to already overcrowded curricula; or as an overall purpose of education systems engaging all aspects of education, both formal and informal.

Fortunately, the conference parties largely accepted the latter, that the broader notion of engaging, reorienting, and re-purposing their entire education and training systems was needed to bring about the necessary and massive societal change in worldviews and lifestyles. Further, it was agreed to:

Invite governments of UNESCO Member States to make further efforts to.... [r]eview the purposes and values that underpin education, assess the extent to which education policy and curricula are achieving the goals of ESD; reinforce the integration of ESD into education, training, and sustainable development policies, with a special attention paid to system-wide and holistic approaches and multi-stakeholder cooperation and partnerships between actors of the education sector, private sector, civil society and those working in the various areas of sustainable development; and ensure the education, training and professional development of teachers and other educators to successfully integrate ESD into teaching and learning. (UNESCO 2014a, p. 2)

Finally, "Educating for a sustainable future" was accepted as an overarching purpose of education and training systems, calling on all disciplines and pedagogies to systemically embed ESD within their cultures.

2.4 The Original Core Elements of ESD Remain Today

ESD is a broad concept, and people often have trouble comprehending it other than as another discipline. Rather, ESD is simply a purpose of the world's education, public awareness, and training systems, drawing on reorienting existing disciplines, initiatives, and pedagogies. Khan's (2014) description of ESD is well formulated:

[ESD] entails a reorienting of education to guide and motivate people to become responsible citizens of the planet. It addresses the interrelationships among the environment, the economy, and society. It moves from teaching about sustainable development to education to achieve sustainable development. It therefore encourages linking ideas to action. It supports the acquisition of knowledge to understand our complex world; the development of interdisciplinary understanding, critical thinking and action skills to address these challenges with sustainable solutions; and the values and perspectives to participate in a democratic society, live sustainably, and to pursue sustainable livelihoods. Nothing could be more important to the future quality of life on this planet than ensuring, through education, the creation of a global culture of sustainability. (p. 11)

Still, the original combined foci of education, public awareness, and training—the three elements in Chapter 36 of Agenda 21 (UNCED 1992)—today remain the core of ESD. The first element, education, has been separated into two core aspects. The first aspect is to improve access to, and retention within, quality education as in *Education 2030*'s target 4.1. Without access to quality education for all humanity, there will be little or no development at all, condemning billions to abject poverty. Unfortunately, more than 260 million young people still have no access to schooling (UNESCO 2017), while several hundred million youth are limited to extremely poor-quality education settings. It must be recognised that, as the world evolves and changes at an ever-increasing rate, education needs to be seen as a lifelong process. Hence, the idea of lifelong access to, and retention within, quality education, as called for throughout SDG 4 and *Education 2030* is an essential component of this first aspect of ESD. However, access to and retention within quality education is a component that is too often overlooked by TE institutions. Yet, it is a crucial and essential way of engaging all faculty in the discussion, rather than one or two who are designated as the “ESD” or “EE” faculty member. This recognition of the true breadth of ESD—and therefore a concern for all TE institutions and their faculty—is a new responsibility and opportunity. With this recognition, our current so-called ESD/EE faculty would be the new engagers of administration and fellow colleagues.

The second aspect recognises that the traditional core curriculum of eight or 10 subjects is no longer adequate to prepare citizens for living in the twenty-first century in a manner that will also ensure the possibility of thriving civilisations in future centuries. As a result of this recognition, the most commonly practised part of ESD is the reorienting of existing education systems from goals focusing on human and national development to incorporating the new concept of sustainable human and national development. This competence is largely called for in SDG target 4.7 and, consequently, in *Education 2030*. The reorienting of the traditional core disciplines of language, mathematics, and natural and social sciences and the

addition of emerging curricular disciplines, such as EE, peace education, global citizenship education, consumer education, and antiracist education, are essential components in the systemic re-purposing processes in which the *Aichi-Nagoya Declaration* invites governments to engage. The remaining two elements of ESD, building public awareness of current and possible future sustainability issues, and the training of those in public and private sectors to address sustainability issues, remain as equal components of ESD.

2.5 Research on ESD and Engaging TE Institutions

In 2014/2015, ministers of education from around the world, calling for the *GAP* with the *Aichi-Nagoya Declaration* and with the *Education 2030: Incheon Declaration and Framework for Action*, endorsed ESD as a central purpose. To pursue this re-purposing, the ministers identified the need to ensure the education, training, and professional development of teachers and other educators to successfully integrate ESD into teaching and learning. TE institutions are now called upon for their contribution in achieving the education goals. This integration needs research.

TE institutions within the International Network of Teacher Education Institutions (INTEI) connected through the UNESCO Chair in Reorienting Education towards Sustainability at York University in Toronto, Canada, have been researching and addressing the complex issues of engaging TE institutions since 2000, and have added substantial findings and recommendations to this ongoing discussion. With both the original research carried out in 28 countries, and the ongoing network discussion at biennial conferences, the INTEI has been suggesting that ESD become an essential part of a larger conversation within and beyond faculties of education regarding quality of life and well-being for all life on Earth. In its research, which led to the publication of *Guidelines and Recommendations on Reorienting Teacher Education Institutions to Address Sustainability* for UNESCO (Hopkins et al. 2005), INTEI members found that the concept of ESD was unclear and unrecognised as an issue for most TE institutions. In particular, the INTEI reported a shortage of faculty members with an understanding of ESD who were able to take on a leadership role in the embedding process. It was hard to imagine reorienting education systems, and hence, many TE institutions had individual members conceiving ESD as another add-on called “sustainability education”, an optional course teaching *about* sustainable development issues instead of teaching *for* a sustainable future. This lack of awareness and conceptual clarity largely remains in many TE institutions.

For the guidelines and recommendations, the INTEI members reported initiatives in addressing and embedding ESD within a faculty framework. Working within their spheres of influence, members had implemented various forms of activities related to ESD at their own institutions. Some examples are listed below.

2.6 Initiatives in Addressing and Embedding ESE Within a Faculty Framework

Curricular/programme development

- Developed graduate-level programmes at master's and PhD levels in ESD
- Established distance education courses in ESD.
- Reviewed and revised existing courses to address sustainability
- Infused ESD into core disciplines such as math, science, geography, history, and technology courses
- Initiated programmes within Women's Studies, Women in Society, Women in Agriculture, and Women's Literacy
- Devised an ESD project using literature and language arts at the secondary school level to address male youth violence and to deliver skills in conflict resolution
- Launched an Aboriginal Studies programme with a focus on ESD and traditional ecological knowledge

Institutional change

- Formed institution-wide ESD committees and discussion groups
- Developed ESD internships for students from other countries
- Established an interfaculty research institute on innovation and sustainability

Faculty professional development

- Developed interfaculty exchanges related to ESD among universities
- Established a national ESD professional development consortium
- Launched an international peer-reviewed journal on ESD

Networking

- Established an ESD link with schools in another country
- Developed a regional strategy for ESD
- Established a language-based ESD network in Europe and the Americas in English, Portuguese, and Spanish

Partnerships/community service

- Developed recognition programmes for schools and institutions that promote ESD (e.g. green school movement)
- Formed sustainable business partnerships to promote ESD
- Engaged geographic information systems and other information technology approaches to monitor community sustainability issues
- Developed community-based off-campus TE projects within the inner city to improve the delivery of schooling to underserved youth
- Developed link between the faculty of education and the school of business to co-develop professional development programmes on ESD for senior-level education administrators

- Produced manuals, texts, websites, and other sustainability teaching resources for elementary and secondary schools
- Translated key ESD materials, including the *Education for Sustainable Development Toolkit* website, into local languages

Promotion of ESD

- Raised the level of awareness of ESD through many activities by writing journal articles and popular press materials; giving media interviews, lectures, and presentations at conferences; contacting academics and educators in many disciplines; and speaking with higher education administrators around the world
- Participated in a national committee to rewrite TE certification requirements

To this end, teacher educators and researchers have a responsibility to become critical colleagues and advocates within faculties of education and beyond. They must examine the assumptions and propositions that circulate within the disciplines and that include the concepts and assumptions informing ESD. Being critical of the shortcomings of the concept of ESD is an essential part; ESD must not become indoctrination but instead be viewed as a stepping stone to yet better answers to the development dilemma that continues to exist in spite of current efforts. Acknowledging and answering the current criticisms of being too human-centred and vague about maintaining what, and for whom, are part of ESD. However, the *2030 Agenda* offers a philosophic and analytical framework for educative enquiries in which the “5 Ps” (people, planet, prosperity, peace, and partnership) are the important principles, and must be considered in relation to one another. Such enquiries provide opportunities for deliberating and addressing complex issues. Pedagogical processes that follow from these enquiries also require complex, multi-layered, and open-ended engagement with critical thinking. In essence, the pursuit of ESD can be inherent aspects within the ongoing pursuit of quality education without the hint or smear of sustainable development indoctrination.

Thus, part of the task for TE institutions is to develop networks across faculties and disciplines, thereby enabling discussions that will explore and theorise relationships and issues among social, economic, and environmental dimensions of sustainable development. These processes of inquiry, theory development, and critical dialogue are our central, ongoing, professional tasks, as opposed to imposing the concept of sustainable development on others.

2.7 Engaging Faculty

In carrying out its work, INTEI members also found that the engagement of faculty beyond close colleagues is difficult. Faculty members are already engaged in their own pursuits and passions. Adding another stand-alone cause to faculties in general, and to faculty members in particular, is daunting. It must be seen as an overarching societal cause, such as inclusive education. INTEI members found that many

faculty members' perception of sustainability is largely about protecting the environment and, therefore, ESD is about EE—and because such individuals were not the “EE person” on faculty, this was not their particular issue to include or pursue. They did not see their academic strengths as relevant to ESD. Yet, broadly engaging administration and faculty members is crucial:

[TE institutions] fulfil vital roles in the global education community for it is they that often bring change within education systems. Teacher-education institutions serve as key change agents in transforming education and society. Hence it is these TEI that could shape the knowledge and skills of future generations. Over and over, education is described as the great hope for creating a more sustainable future yet when it comes to resourcing the mandate it has become a forgotten priority. Not only do teacher-education institutions educate new teachers, they update the knowledge and skills of in-service teachers, create teacher-education curriculum, provide professional development for practicing teachers, contribute to textbooks, consult with local schools, and often provide expert opinion to regional and national ministries of education. Institutions of teacher education also perform similar services for school principals who have significant impact on what occurs in schools. (Hopkins et al. 2005, p. 11)

Because of this broad influence in curriculum design and implementation, as well as policy setting within educational institutions, faculty members of TE institutions are perfectly poised to partner in *Education 2030* and other ESD initiatives. By working with the administrators and faculties of TE institutions, governments can bring about systematic and economically effective change. For these reasons, nations should include TE institutions in their national sustainable development plans, and most certainly in implementing *Education 2030*.

However, in preparing for this hoped-for engagement with local and national strategists, we must prepare ourselves within our own institutions. One important tool in engaging the entire faculty is to borrow from change management theory, and acknowledge that not only leadership and resources are necessary; each member must understand the rationale and the expected outcomes of the change. In addition, there must be expectations, targets, monitoring, and celebration. There should be assessment and recalibration of targets. This cannot be the responsibility of any one person or one department. We must recognise that we are speaking of examining the very purposes of education and reorienting each discipline to contribute to a coherent and effective outcome. We must understand that to accomplish this, no single teacher, discipline, or department can do it all or can “own” ESD. Rather, every teacher, discipline, or department can, and should, contribute to the effort. For example, special education teachers help ensure the first of the three elements of ESD in ensuring access to, and retention in, quality education. Teachers working in gender studies, and those trying to improve the education of Indigenous and vulnerable youth, are addressing SDG 4.5: equity. Furthermore, early childhood educators are working on SDG 4.2, and those preparing mathematics and language teachers are already working on SDG 4.1. However, beyond individual initiatives, *Education 2030* calls for an institutional approach. Some individuals or sectors must take lead roles in initiating the reorientation discussion, and maintaining the momentum. This is particularly crucial for all who have experienced initiatives rise and fall. The leadership for initiating and maintaining the discussion can come from any respected

individual or group. Lastly, administrators and leaders must step up and fulfil their role. Leadership, coordination, and resourcing the “strengths” identified by each faculty member are key elements of “whole institution” or systemic undertakings such as these. What emerges in our favour is that each UN/UNESCO member state eventually will report on their progress in achieving the education goals for the GEM Report and the *Global Indicator Framework*.

The overarching pursuit of enhancing national/provincial standings in standardised tests, such as the Programme for International Student Achievement (PISA), is essential to the faculty discussion regarding ESD as an emerging purpose and goal of education. Engaging in this discussion is necessary, and it is important that the purpose and goals of ESD and PISA are not at odds. Taken in its overall framework, PISA is an important tool for informing educators, but can be detrimental when reduced to a simple language or mathematics proficiency indicator. Although mastering such disciplines is important and essential to assist us in life, they are only tools in our lifelong pursuit of learning; they are not the purpose of education. In this simplistic analogy, PISA indicates the quality of our students’ tools. Comprehending the true underlying purposes of an education for all citizens, individually, and collectively, and assessing the success of our education systems achieving these purposes, is far more complex (Delors 1996). It is a discussion worth having by all TEIs and their faculty members.

The research paper entitled “Contributions of Education for Sustainable Development (ESD) to Quality Education: A Synthesis of Research” (Laurie et al. 2016) adds to the discussion on whether ESD is a contribution to or a distraction from standardised tests such as PISA. The findings are clearly in favour of implementing ESD into the whole school. Over a period of 2 years, 43 researchers collected answers from school systems that have profoundly embedded ESD into their respective schools’ culture. These schools spanned 18 countries, most of them from high-scoring PISA nations such as Japan, Finland, Canada, and Korea. The five research questions asked were, “How can ESD”:

1. Update and improve educational outcomes
2. Help to improve and enrich curriculum
3. Guide students to have the knowledge, skills, and values to care about and solve future sustainable development issues
4. Help strengthen the partnerships between schools and other stakeholders, including the community
5. Promote innovation in teaching-learning conceptual frameworks (p. 232)

Results showed that by embedding ESD throughout the school systematically, from policy to everyday practice, this ESD approach resulted in (a) increased academic skills, (b) stronger critical thinking skills, (c) deeper understanding of topics, (d) better research skills, (e) becoming more prepared for job market, (f) enhanced communication, (g) writing and mathematical skills, (h) increased problem-solving skills, (i) enhanced abilities in forming/defending opinions, and (j) enhanced post-secondary studies preparation. These are all attributes that build upon the overall aspects of quality education, and enhance the overall mission of PISA.

The call by the UN and UNESCO to revisit the purpose of education and reorient systems to address sustainability threatens neither current views of education quality nor even PISA rankings. There is a clear need, however, for education leaders to address both ESD and PISA influences. It would be helpful if they could be addressed in a synergetic way, as both programmes seek to enhance the quality of education.

2.8 Conclusions and Outlook

SDG 4 has now become a global priority, clearly identified and strongly anchored in the Sustainable Development Goals of the United Nations' *2030 Agenda for Sustainable Development* and in *Education 2030*. Along with the GEM Report, *Education 2030* will form an overarching imperative for the next several years. As such, education and educators are to be included as crucial elements of national sustainable development strategies. Around the world, many TE institutions have continued their part of the work that was initiated during the UN's Decade of Education for Sustainable Development by focusing on the new *GAP* on ESD since 2015. This is important to persistently provide research-based knowledge on emerging trends and developments in education.

In creating more knowledge through research, the UNESCO Chair's INTEI—with more than 300 members in 74 countries—serves as an action research platform and continues to lead research projects that provide policy advice from the practical work on how to bring the concept of ESD further forward. For instance, the latest research focuses on reorienting education and training systems to improve the quality of education of Indigenous youth, as called for in SDG targets 4.5 and 4.7, and is being carried out in 40 countries.

Despite the recognition of ESD in recent years, there continues to be a need to further question and enhance the importance that education leaders put on ESD until the concept is internalised. Too few ministry officials and faculty members feel competent to lead these efforts and discussions. On the other hand, experts need to continue a future-oriented yet critical dialogue to further develop the concept and the implementation of ESD for a sustainable future of the planet.

There are new opportunities today for educators from at least two perspectives (Swedish International Centre of Education for Sustainable Development 2016). The first is to get involved in the nation's and/or province's sustainable development strategies, establishing or enhancing the importance of education, public awareness, and training as a common public good, strengthening the effectiveness of a knowledgeable citizenry, and furthering the chance of a more sustainable future. In connecting within and across TE institutions nationwide, a stronger voice can be raised in order to influence these strategies and initiatives. Joint TE institutional research-based activities could provide more evidence on the potential effectiveness of ESD. TE institutions researching, implementing, and learning from each other can create significant benefits for communities, provinces, regions, and beyond.

The second opportunity for ESD and TE institutions alike is to use the international quest for a more sustainable future to revitalise the potential of education systems by using ESD as an integrative purpose of education. A whole-systems approach to ESD, bringing new relevance to curricula, adapted both in content and pedagogy through systemically addressing the elements of SDG 4, could lead to an overall enhancement of service to students and the community. This revitalisation and resulting re-visioning of the societal importance of education systems to the future well-being of all would be welcomed by both educators and society.

Visionary leaders, resources, and people of good will are needed to help TE institutions rise to these responsibilities and seize the opportunities that have emerged. Never before has it been so possible both to enhance the quality of education and to become a central element in the search for a sustainable future for the planet in a concerted global undertaking.

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