Chapter 1
Education for Sustainable Development in Canada and the United States

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Formal Education in the New Millennium

Formal education is at a crossroads in Canada and the United States. Children and adolescents in secondary schools report low levels of satisfaction with schools and find little curricular relevance to the lives they live today or the lives they wish to lead in the future. It should not be surprising to find that in both countries dropout rates have grown in the past decade. Among those students who stay in school, levels of engagement are low. Yet, the challenges that the youth in school today will face when they reach adulthood are daunting.

As the impacts of various environmental problems become better understood, it is becoming clear that solutions are going to be complex and will require cross-sectoral efforts. Similarly, the global recession and resultant economic and social problems have exacerbated the divide between the haves and the have-nots. The purposes of formal education are being questioned in both Canada and the United States because education systems designed for the twentieth century are not up to the task of educating children for life in an uncertain future. If formal education continues on its current path, future Canadian and US citizens will lack the knowledge and skills necessary to meet the challenges they will encounter.

Education for sustainable development (ESD), however, offers an alternative to the obsolete *status quo*. The many ways that the formal education community in Canada and the United States have begun to embrace ESD are illustrated in the chapters of this book.

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Purpose and Structure of This Book

The purpose of this book is to capture the status of education for sustainable development in the formal education sector in two countries: Canada and the United States. In these two countries, formal education generally is understood as schooling provided in the primary and secondary grades, as well as higher education (e.g., colleges and universities). Although nonformal education can play a role in raising public awareness of sustainability and in shaping more sustainable behaviors, this book focuses on formal education.

The book is a collection of essays by academics, administrators, practitioners, and providers of education for sustainable development at different levels of the formal education community. The essays reflect leading-edge practice, innovation, and depth of experience. A decade ago, the authors and organizations described in this book were pioneers in the field of ESD. In this book, they share with us their expertise, lessons learned, and insights into the ongoing success of their work. The ESD programs described in the chapters are locally relevant and culturally appropriate for the contexts in which they are found and, at the same time, they provide clear models and strategies for expanding the application and influence of ESD.

This book has seven sections: (1) Overview (2) Teacher Education, (3) School Systems, (4) Reorienting Curriculum to Address Sustainability, (5) Nonformal Education Serving Formal Education, (6) Higher Education, and (7) The Practitioner's Voice. The sections were selected to provide examples and models of ESD from various perspectives and levels. The book focuses on the contributions of schooling to help communities, provinces/states, or nations reach their sustainability goals.

The contexts for ESD are very different in Canada and the United States. Canada has embraced the sustainability paradigm since the mid-1990s, whereas in the United States, ESD was absent from the policy agenda during much of the last decade. However, the Obama administration has embraced the term, and the concept of sustainability can be found in a wide variety of federal initiatives in the United States, including the Department of Education. However, efforts to reorient education systems to address sustainability are more advanced in Canada than in the United States today.

Although this book focuses on formal education in Canada and the United States (i.e., primary, elementary, and secondary schooling through higher education), a large number of nongovernmental organizations also work to provide out-of-school experiences for pupils that address learning outcomes in the mandated state and provincial curriculums. Indeed, one of the messages that comes through in the chapters is that as the entire context of schooling evolves to meet the challenges and opportunities of the twenty-first century, the line between "formal" and "informal" education sometimes becomes blurred. The chapters in this book clearly illustrate that ESD is singularly well-suited to that changing twenty-first-century educational context.

Schooling and Sustainable Development

The title of the series to which this volume belongs has two words that warrant attention: schooling and sustainable development.

Schooling

It is well understood that ESD for all people of all ages requires formal, nonformal, and informal education. The mandate for ESD is so broad that it has to be an inclusive effort. Nevertheless, this book looks at the contributions of formal education provided in primary and secondary schools and institutions of higher education to a more sustainable future. The focus on schooling is important because schools shape the majority of future voting citizenry and leaders in the world. Of course, the accessibility to schooling varies greatly around the world. In some countries, the majority of adolescents graduate from secondary school, while in contrast in impoverished and war-torn areas, few children can enroll in school. In Canada and the United States, nearly everyone has access to a free public education. In fact, education is compulsory until the age of 16 or 18 in many states or provinces.

In Canada and the United States, children and adolescents generally go to school from about the age of 5 through the age of 18. This schooling is often referred to as kindergarten through 12th grade; the abbreviation is K-12. University education is 4 years for most disciplines.[1] The combination of primary, secondary, and university education is referred to as K-16.

Schooling in Canada and the United States is a huge community endeavor. A school system can be among the largest employers, purchasers of goods, or providers of meals and transportation within a community. Large portions of community revenue and state/provincial revenues go to support schools. Furthermore, nonprofit organizations, such as museums, zoos, and nature centers, offer programming that helps schools meet the requirements of mandated state and provincial curriculums in interesting and engaging ways.

Sustainable Development

The other term worthy of description is sustainable development. We use the term here because of its broad international use. Sustainable development is the overarching paradigm at the United Nations to address numerous interrelated problems (e.g., poverty reduction, environmental protection, social justice, etc.). Although sustainable development is at the center of international discourse, it is also contested.

[1] Achievement in higher education is often denoted by degrees: associate after 2 years of study, bachelors after 4 years of study, masters after about 6 years of study, and a doctoral degree after about 8 years.

Sustainable development is thought of as a process, in reality many processes, to attain a more sustainable future. The related term *sustainability* is both an idealistic end point of the sustainable development process as well as a paradigm for thinking about the future in which environmental, social, and economic interests and concerns are balanced. The sustainability paradigm is a large shift from the previous economic paradigm in which economic growth was accompanied by casualties in the environmental (e.g., pollution) and social realms (e.g., damage to human health), and these casualties were both expected and accepted. In the emerging sustainable economy, we have numerous examples of material that was once considered worthless effluent (e.g., black liquor from pulp mills), which was often dumped into the local environment, but is now considered valuable for recovering chemicals or materials.

Sustainability is far more than being green; it carries with it the concept of equity between individuals and groups as well as between generations. Sustainability is based on a host of values associated with human dignity and human rights. It also incorporates economic justice and poverty reduction. A full discussion of the complexity of sustainable development and its implementation is far beyond the scope of this chapter or this book, but this brief description is sufficient to provide a context for education for sustainable development (ESD).

As noted earlier, the history of acceptance of the sustainability paradigm is different in Canada than in the United States. Canada embraced sustainability years prior to the United States accepting it. For example, Canada has a history of governmental structures to monitor Canada's sustainability efforts. The 1995 amendments to the *Auditor General Act*:

- Created the position of Commissioner of the Environment and Sustainable Development within the Office of the Auditor General of Canada, giving the Commissioner specific monitoring and reporting duties, on the Auditor General's behalf.
- Required federal departments and agencies to prepare sustainable development strategies and update them every three years. (Auditor General of Canada, 2010, para 2)

The United States was slower to embrace sustainability. During the Clinton administration, The President's Council on Sustainable Development (1996) published a forward looking plan to integrate education for sustainability into all levels of the US education system; however, that plan languished during the subsequent George W. Bush administration (2000–2008). In fact, the Bush administration did not even use the term sustainability and as a result neither did some state governments.

The Obama administration has shown greater acceptance of the concept of sustainability. For example, Obama issued Executive Order 13514 Federal Leadership in Environmental, Energy, and Economic Performance in October 2009 "to establish an integrated strategy toward sustainability in the Federal Government." However, in spite of recent progress, many individuals and fields within the United States are feeling the retarding effects of 8 years of little or no attention, dialogue, or funding from the federal government for sustainability initiatives.

Environmental education, and increasingly education for sustainability, is currently considered part of a well-rounded education. For example, Secretary of Education Arne Duncan said, "Historically, the Department of Education hasn't been doing enough in the sustainability movement. Today, I promise you that we will be a committed

partner in the national effort to build a more environmentally literate and responsible society" (U.S. Department of Education, 2010, 2011a).

What Is ESD?

Education for sustainable development, ESD, is also called education for sustainability (EFS) in Canada and the United States. ESD is implemented in many different ways; nevertheless, it contains some core elements. Tilbury (2011) from a literature review noted that ESD conveys more than knowledge about sustainability but also involves:

- Learning to ask critical questions,
- Clarifying one's own values,
- Envisioning more positive and sustainable futures,
- Thinking systemically,
- Responding through applied learning, and
- Exploring the tension between tradition and innovation.

McKeown (2002) stated that a curriculum reoriented to address sustainability should have content, skills, perspectives, values, and issues related to sustainability. Other publications have identified characteristics of ESD (e.g., locally relevant and culturally appropriate; interdisciplinary: addresses all three realms of sustainability—environment, society, and economy) (UNESCO, 2005a). ESD is not about simply "knowing" but also about "doing" as well as valuing. It implies acquiring and applying knowledge and skills to become personally engaged with the challenge of helping to bring about sustainability—an equitable balance of environmental, societal, and economic concerns. In this respect, ESD is "action oriented" and ESD is aimed at enabling personal and collective action to improve outcomes for all, now, and in the future. ESD should be created for and responsive to the local cultural and economic contexts as well as environmental conditions. Thus, there are many ways to implement ESD successfully to help communities and countries meet their sustainability goals and attend to the well-being of the planet and all its living inhabitants.

ESD was first described in Chapter 36 "Promoting Education, Public Awareness and Training" of Agenda 21.[2] The big picture was that all of the world's education systems, public awareness systems, and training systems should educate all the world citizens in ways that would lead to a more sustainable future. That means every teacher, educator, administrator, professional development trainer, community educator, public health educator, agricultural trainer, nature center docent, etc., can and should contribute to ESD for everyone from very young learners to very old

[2] Agenda 21 is the official document of the United Nations Conference on Environment and Development, also called the Earth Summit, which was held in Rio de Janeiro in 1992. Agenda 21 is a comprehensive blueprint for action to be undertaken globally, nationally, and locally by organizations of the UN, governments, and major groups.

learners. There are 70 million teachers in the world and untold numbers of other types of educators and trainers. If and when the education community can make a concerted effort to address teaching and learning for a more sustainable future, the sheer number of educators will make that dream a more probable reality.

When the formal education community first started discussing ESD in the early 1990s, a general misconception permeated the dialogue. The misconception was that ESD was an add-on to the curriculum or that it belonged in the same category as dozens of other adjectival educations[3] like environmental education, driver education, global education, and peace education. Adjectival educations all compete for a place in the curriculum after core subjects (e.g., language arts, mathematics, social studies, and science) and second-tier subjects (e.g., art, music, health, and technical and vocational education) have been timetabled.

Status as another adjectival education is far from the original vision of ESD, that all of education would contribute to creating a more sustainable future. The potential contribution of all disciplines to ESD is captured in the "strengths model"; it posits the following:

1. Education for sustainable development (ESD) does not belong to a single discipline.
2. Every discipline, all teachers, and all administrators can contribute to ESD.
3. All disciplines contribute both content and pedagogy (e.g., inquiry from the natural sciences, spatial distribution from geography, creativity from the arts, and critical thinking from many disciplines).
4. Those who carry out the integration process to create a comprehensive ESD program must be supported and enabled by educational decision-makers (e.g., departments or ministries of education).

In the strengths-model approach, everyone is responsible for weaving sustainability into the curriculum, meaning it is not the sole responsibility of the ecology or geography teacher. The synergistic strengths of combining educational disciplines (i.e., interdisciplinary teaching and learning) into ESD are important. Inquiry from the natural sciences, spatial distribution from geography, extremely large and small numbers from mathematics, communication skills from language arts, creativity from the arts, and critical thinking skills from a variety of disciplines are all needed to study and learn about the complexity of our world and to create a better future.

United Nations Decade of ESD

Based on a recommendation from the World Summit on Sustainable Development held in Johannesburg, South Africa, in 2002, the United Nations General Assembly in resolution 57/254 created the Decade of Education for Sustainable Development

[3] The term adjectival education was coined by the late John Smyth. It refers to any subfield of education that uses education or studies in their name. Over 100 adjectival educations exist.

(UNDESD) (United Nations General Assembly, 2002). The overall goal of the UNDESD is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This educational effort has already encouraged changes in behavior that are likely to create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations (UNESCO, 2005b).

> The DESD envisages a world where everyone has the opportunity to learn the values, behaviour and lifestyles required for positive societal transformation and a sustainable future. The vision also includes preparing people of all walks of life to understand, analyze, plan for, cope with, and find solutions for issues that threaten the sustainability of our planet. The DESD is such a broad endeavor that it calls on individuals and stakeholders at all levels—local to international—to be involved. Governments, civil society, NGOs and business/industry can and should have a role. (UNESCO, n.d.)

The UNDESD has stirred the imaginations of educators around the world. ESD programs have sprung up worldwide, and existing education programs have woven sustainability into their goals, plans, and programs. The midterm report of the Decade reported that although there is much on-the-ground practice of ESD, institutionalizing ESD in educational plans and policies lags behind (UNESCO, 2009).

Four Thrusts of ESD

ESD programs around the world vary widely as they strive to be locally relevant and culturally appropriate. However, all ESD programs should seek to address four basic areas or thrusts. Those four thrusts are:

- Improving access and retention in quality basic education,
- Reorienting existing educational programs to address sustainability,
- Increasing public understanding and awareness of sustainability, and
- Providing training to all sectors of the workforce.

These four thrusts are described in the next sections. Thrusts one and two primarily involve formal education. Thrusts three and four are mainly concerned with nonformal and informal education. Accordingly, addressing all four thrusts of ESD requires actions by the formal, nonformal, and informal sectors of the education community.

The first two thrusts of ESD are the heart of this book. Each of the chapter authors and each of the organizations featured in this book have *quality* education at the heart of what they do. Furthermore, many of the authors went through processes of reorienting existing programs (e.g., traditional disciplinary curriculum and environmental education programs) to address sustainability, which is the second thrust.

Improving Access and Retention in Quality Basic Education

Enrolling and retaining both boys and girls in quality basic education is important to their well-being throughout their lives and to the communities in which they live.

Basic education focuses on helping pupils gain knowledge, skills, values, and perspectives that encourage sustainable livelihoods and living daily in a sustainable manner. Although both Canada and the United States are hugely successful in enrolling children in school, keeping them there is a problem. Dropout rates in both countries have risen dramatically recently (i.e., 31% in the United States with some provinces in Canada experiencing similar statistics) (Bridgeland, Dilulio, & Morison, 2006; Richards, 2009). Compared to many nations, the high school completion rates are good; however, compared to recent history, the dropout rate has given the public cause for concern (see Chaps. 2 and 4). Providing a quality education that retains adolescents in school is a large ESD-related challenge in both the United States and Canada.

Defining quality education in a rapidly changing world is difficult, so it is not surprising that school administrators and school boards struggle with this issue. What was quality education at the end of the 1990s would not be considered quality today. Community demographics, technologies, ecosystem integrity, economic stability, and social well-being are all changing and, in some cases, deteriorating. Education has to respond to the complex changes in society and at the same time prepare students for the world they will encounter in the near future.

Increasingly, a key element in evaluating the quality of an educational experience is preparation of students for employment. A quality education addresses issues of employability by ensuring that students stay in school, complete high school, and are prepared to join the workforce or continue their education in a postsecondary program. In the switch to a green economy, this component of quality education is of growing importance. It is not surprising then that the green economy and creation of green jobs was a key theme for the Rio+20 conference in 2012 and is a core component of both Canadian and US national policy.

A quality education also responds to research on teaching and learning to meet the needs of historically marginalized populations, such as minority language speakers, children of migrant families, and students with disabilities. For example, students in need of special attention in school—those with learning disabilities, physical impairments, and emotional disturbance—are on the rise (U.S. Department of Education, n.d., 2011a, 2011b). About 13% of students in the United States receive special education services. This raises questions about how schools are staffed and equipped to handle such needs in these times of budgetary cuts. Early interventions are often successful, leading to more positive outcomes throughout students' careers as learners and throughout their lives. Students who do not adequately receive special education services disengage from school disproportionately. Such disengagement affects the quality of their daily lives now and in their futures.

In both Canada and the United States, the issue of education quality is closely linked to issues of access and equity. Both countries have struggled to ensure that poor children and students from ethnic, racial, and language minority groups have the same educational opportunities as students from middle-class and wealthy families and students from the dominant culture. In Canada, education is recognized and legislated as a fundamental social good and considered a significant human right under international human rights law. A publicly funded education system, accessible to all, is recognized as a core constitutional responsibility of provincial governments,

and access to education cannot be denied because of one's gender, ethnic origin, disability, or age.

In the United States, the 1954 *Brown vs. Board of Education* decision created the expectation that equal access to an education is a constitutional right. The Brown decision affirmed that denial of access to the social and economic benefits of an education would be tantamount to denial of equal protection under the Equal Protection clause of the Fourteenth Amendment. After Brown, schools were no longer allowed to segregate students on the basis of race. The provisions of Brown were extended to students with disabilities under federal special education legislation in 1975.

Reorienting Existing Educational Programs to Address Sustainability

Reorienting education requires revising education at all levels from early childhood care all the way through higher education. It requires rethinking what is taught, how it is taught, and what is assessed, with sustainability as the central theme. One of the main challenges to this second thrust is to educate the pupils of today to be citizens and leaders of tomorrow—a very different tomorrow. The next generation will have to do more with less. There will be more people in a world of diminishing natural resources, such as fossil fuels, arable farmland, forests, marine fish stocks, and unpolluted fresh water. The major question that underlies contemporary curriculum revision is how to educate for an uncertain future.

Much of traditional education is based on knowledge and skills; however, reorienting education to address sustainability also involves incorporating values, perspectives, and issues related to sustainability (McKeown, 2002). Although some K-12 schools are adding sustainability issues to the curriculum (see Chaps. 13, 21, and 22), the discussion of values in most school districts has not progressed much beyond character education[4] and may not adequately address topics such as equity and social justice. The ethical principles and values associated with living in a sustainable world, such as those in the Earth Charter,[5] are as important to ESD as is content knowledge.

Increasing Public Understanding and Awareness of Sustainability

Achieving national or community sustainability goals requires citizens who are knowledgeable about sustainability in general and specifically about daily actions

[4] Character education takes many forms, but generally addresses the characteristics of individuals such as respect, honesty, kindness, etc.

[5] The Earth Charter is a declaration of fundamental ethical principles for building a just, sustainable, and peaceful global society in the twenty-first century. It is the result of a decadelong, worldwide, cross-cultural dialogue on common goals and shared values. http://www.earthcharter.org

necessary to help achieve those goals. Such a citizenry will require widespread community education to adopt daily practices related to energy use, waste disposal, resource conservation, social cohesion, and civic responsibility. This third thrust also requires a responsible media committed to encouraging an informed and active populace learning throughout life.

Probably the biggest challenge for Canada and the United States in this thrust is consumerism and consumer education. Purchasing habits in industrialized countries drive resource extraction, manufacturing, and transportation of goods around the world. Such consumerism also leads to environmental degradation, pollution, abuse of labor, and economic inequities in lower-income countries to support the buying habits of higher-income countries (Herrera, 2007). Such public awareness programs will require changing habits, behaviors, and ways of thinking, which is far from easy. It will take cultivating a spirit of working for the common good rather than personal comfort or gain as well as a culture of conservation and sustainability.

Providing Training to All Sectors of the Workforce

All sectors of the workforce can contribute to local, regional, and national sustainability. Both public sector and private sector employees need to receive ongoing vocational and professional training infused with the practices and principles of sustainability, so that all members of the labor force can access the knowledge and skills necessary to work in a sustainable manner and make decisions that balance economic, social, and environmental concerns. Much of the workforce in Canada and the United States attended school before sustainability was part of the curriculum. As a result, the need for training is high.

Four Thrusts and Formal/Non-Formal Education

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ESD and Student Engagement

While ESD can address the major educational issues of our times (e.g., dropout rates in both Canada and in the United States and the achievement gap between students of color and White students), it does not mean doing business as usual. It means taking school reform to another level. It will "require a significant shift in our current designs for learning, the beliefs we hold about the purpose of schooling" (Willms, Freisen, & Milton, 2009, p. 1). The good news is there are models of schools that have successfully addressed these issues and they are doing it with sustainability as a theme (Tell Them From Me [TTFM], 2011).

Much of the school reform dialogue in the United States has been around testing accountability and choice (Ravitch, 2010). The irony is that although the testing of basic skills was supposed to provide data to improve education, in practice, it actually contributed to dropout rates, particularly among minority children (McSpadden McNeil, Coppola, Radigan, & Vasquez Heilig, 2008); narrowed the curriculum (i.e., the focus on test preparation); and made school less interesting (Cawelti, 2006; Crocco & Costigan, 2007; Gunzenhauser, 2003; Jaeger, 1991; Shepard, 1991). Similarly, Bridgeland et al. (2006) reported that that the majority of students in their study who dropped out of school cited as a reason "classes were not interesting."

The problem with a narrowed curriculum is that it is unlikely to be relevant to the lives of students—either the lives they live or the lives they would like to live in the future (Certo, Cauley, Moxley, & Chafin, 2008; Marks, 2000). To understand relevancy, we have to understand student engagement (social, academic, and intellectual) in school. Each of these three types of engagement has several subcategories. For example, social engagement includes sense of belonging, participation in school teams, clubs, student government, and school-wide campaigns as well as positive relationships with peers and adults (Willms, Friesen, & Milton, 2009). Measures of disengagement include boredom (temporary) and dropping out (permanent).

The High School Survey of Student Engagement (HSSSE) in the United States reported that 98% of the students were bored, and of these, 81% responded the "material wasn't interesting" and 42% noted a lack of relevance of the material (Yazzie-Mintz, 2010). In Canada, student intellectual engagement drops between the sixth and 12 grades ending at 37% (Willms et al., 2009). In a parallel study using similar intellectual engagement measures (i.e., those developed by the Canadian Education Association and used in the What Did You Do in School Today initiative), the Tell Them From Me survey showed that in some Manitoba schools that emphasize sustainability, the intellectual engagement rate is above the national average (TTFM, 2011; The Learning Bar, 2011). This increase in intellectual engagement may be due in part to the use of the sustainability paradigm and ESD pedagogies.

The question becomes how do we create curriculums—and for that matter schools—that are relevant to the students and engage them on several levels? Curricular relevancy should not be based on adult perspectives of relevance, but on student perspectives. Of course, there are objections to listening to and, therefore, respecting students. A mindset persists with some that children and youth do not

know what is best for them (e.g., they want us to serve cola and donuts, which are not nutritious, in the cafeteria). However, looking at the responses to student survey data gives good indications of relevance. The HSSSE quotes one student, whose comment reflects the thoughts of many, "We should be able to take classes that would actually help us in what we want our career to be."

ESD can address what school boards, educators, and parent are concerned about (e.g., delivering a quality education and preventing dropouts), but because our concern is the same, it does not mean moving ahead in twentieth-century paths. It means being bold enough to step out of the linear progression of textbooks of distilled knowledge and toward structuring learning around the things that concern students (e.g., their future in a world where global climate change, increasing population, and decreasing natural resources will be quite different). It also means empowering students to analyze things in the world that they perceive as not right, propose solutions, and then to take action to help implement changes that contribute to solutions.

The 193 member states of the United Nations use sustainability as an overarching paradigm for thinking about a better future and solving the problems that confront the world today. The education community would be wise to adapt a similar paradigm for schooling.

Purpose of Education

In many low-income countries around the world, education is seen as an important investment in development. Historically, in Canada, the purpose of schooling was "to provide an opportunity for general social improvement" as well as prevent "social instability" (Gaffield, 1988, p. 665). The purpose of schooling changed over the years and evolved to "develop the personal capacities of individuals, but also impart skills useful to society" (Leslie, 1988, p. 670). Since the early 1960s, in both Canada and the United States, the purpose of schooling has been "to eliminate barriers that are based on race, ethnicity, sex, and social class" (Porter, 1988, p. 672). More recently, the purpose of schooling in the United States and many other countries is for national economic competitiveness (National Commission on Excellence in Education [NCEE], 1983).

National economic competitiveness, especially within an economic growth model, as the purpose of education is undergoing scrutiny around the world. Unfettered economic growth and competitiveness have led to the destruction of ecosystems, serious depletion of natural resources, and decline of human well-being in the long term. When nations compete, there are short-term winners and multitudes of losers. In the long term, there is huge global loss. As a result, countries like Finland and Bolivia as well as provinces of Canada have changed their purposes of education to include statements of well-being and regional visions and statements of sustainability. Ministries of education see the value-added of using sustainability as a focus of education.

For years, ESD has focused on education's contribution to a more sustainable world. However, with reexamining the purpose of education, the focus is inverted and the question becomes, what can sustainability contribute to education? The answer is severalfold, including vision, engagement, and relevance.

Students of today are connected to the rest of the world through the media and social media. They arrive at school knowing that something is wrong in their communities and communities around the world. They might pass homeless people on their way to school, and the nightly news tells them of the global financial crises resulting in children going hungry in middle-class neighborhoods as well as in other continents. Students are worried about their future, especially about confronting the immense challenges of global climate change. Unfortunately, many of the things that concern them are not included in the elementary and secondary curriculums. Generally, schooling neither addresses their concerns nor empowers them to address the challenges facing the world.

Teachers and administrators report that students are tired of learning for the sake of learning; however, they are absorbed by learning that addresses their concerns and behaviors to ameliorate the problems of the world. Sustainability as a theme of inquiry addresses the problem of decreasing student engagement and the relevancy of the curriculum. Sustainability as the purpose of education addresses the concerns of the students of today.

Beyond purpose, sustainability gives a common vision to schooling—the vision of a better, more sustainable world and the positive social transformation that accompanies that vision. For students who study in schools where sustainability is a unifying theme, working toward a common good is part of that vision. (See Chaps. 21 and 22.)

Chapters and Interrelationships Between Chapters

This book opens windows through which to view the role of schooling for sustainable development in Canada and the United States. Collectively, the chapters give the big picture, showing both breadth and depth; however, the book falls short of providing a comprehensive description of all of the ESD efforts in these two countries. Many ESD efforts, both wonderful and mundane, could not be described within these covers; however, the authors acknowledge their important contributions to ESD and the future of our world.

Chapter 2 by Charles Hopkins and Chapter 3 by Noah Weeth Feinstein and Ginny Carlton take large-scale, nationwide views of ESD. Charles Hopkins, who is an elder statesman in the field, describes the growth and progress of ESD from the late 1980s until today. The advent of the UNDESD stimulated progress in ESD across Canada. He describes major ESD efforts by the Canadian Council of Ministers of Education and the provincial government of Manitoba. Feinstein and Carlton focus on educational policy and the environmental education roots of ESD in the United States. The contrast between the two chapters poignantly reveals the differing outcomes of two

neighboring countries. The Canadian national government embraced sustainability in the first decade of the century and the United States did not. As a result, today, Canada is ahead of the United States in ESD in the K-12 years.

Chapters 4 and 5 provide an overview of teacher education and ESD in Canada and the United States. Don Dippo examines some of the persistent problems in teacher education as a context for understanding contemporary discussions about teacher education and social change. Victor Nolet describes the large challenges of K-12 education in the United States and how teacher education needs to be positioned to meet those challenges. Within that context, he describes efforts to reorient teacher education programs to address sustainability.

Chapters 6 through 10 describe the response of school systems to address sustainability. This part of the book looks at the mesoscale for ESD geographically and with a school-system approach. At the school-system level, ESD is far more than weaving sustainability into the curriculum. Gerry Connelly in her chapter on the Sustainability and Education Academy (SEdA) describes a professional development program that supports school leaders to incorporate sustainability into all aspects and activities of a school system (e.g., governance, curriculum/teaching/learning, human capacity building, facilities and operation, and partnerships). Carolee Buckler and Anne McDiarmid describe the activities of Manitoba education to incorporate sustainability into school divisions across the province. Gilda Wheeler describes the efforts of the state of Washington to incorporate sustainability into learning standards for elementary and secondary school as well as teacher certification requirements. Jen Cirillo and Anne Tewksbury-Frey describe ESD as it is practiced at the first sustainability-themed elementary magnet school in Burlington, Vermont. Eric Foster describes the efforts of the Dearness Environmental Society, a nonprofit organization, to help two school districts in Northern Ontario to weave sustainability into the curriculum, professional development, facilities operations, and community relations. This set of chapters reflects highly innovative work and years of effort to create groundbreaking ESD programs. These programs are where other states, provinces, school districts, and schools aspire to be in terms of providing quality education as well as introducing sustainability to elementary and secondary students.

Chapters 11 through 13 examine the second thrust of ESD: reorienting education to address sustainability. These chapters describe the purpose and practice of weaving knowledge, skills, perspective, and values related to sustainability into school subjects. Susan Santone explains the similarities and differences between conventional economics and ecological economics. Margaret Crocco, Anand Marri, and Thomas Chandler focus on the social studies and describe four global competencies that lead to knowledge formation, deliberation, and action. Wendy Church and Laura Skelton describe the ways in which Facing the Futures, a nonprofit organization, weaves sustainability content and perspectives into core subjects to provide a context for classroom projects, allowing students to apply academic knowledge and skills to seek solutions to real-world problems and engage in authentic community service.

Chapters 14 through 16 provide examples of ways the nonformal sector of the education community supports schools to provide ESD. Joe Heimlich, Vicki

Connelly Searles, and Allyson Atkins write about the contributions of zoos and aquariums to ESD through field trips, outreach to schools, teacher workshops, etc. Ken Voorhis describes the efforts of the Great Smoky Mountain Institute at Tremont to provide a residential immersion experience for elementary and secondary students. This chapter ends with his personal reflection on the questions that so many educators ask themselves—is it worth it? Nancy McGee describes the efforts of the Toronto and Region Conservation Authority's almost 60-year history of providing a broad spectrum of educational programs to support formal education systems to provide ESD.

Chapters 17 through 19 look at ESD through the lens of institutions of higher education (IHEs). Paul Rowland describes the work of the Association for the Advancement of Sustainability in Higher Education, an NGO, to support efforts in both academic programs and campus operations in numerous IHEs. Catherine Reid describes the efforts of Warren Wilson College to create a sustainable campus and more sustainable world through the triad of academics, work, and service. Jennifer Foster looks at the efforts of York University, a large and diverse campus in Toronto, Canada, to incorporate sustainability into curriculum, research, and institutional programs and practices through a pan-university approach through the President's Sustainability Council.

Chapters 20 through 23 view ESD at the micro- or individual scale. These four personalized chapters capture the voices of a musician, Joyce Rouse; two high school teachers, Susan Olds and Brad Kuntz; an elementary school principal, Curt Belton; and a university professor, Cynthia Wood. These educators share their personal insights into ESD, the schools and school systems where they work, and their interactions with students.

In both Canadian and US formal educational systems, the economic sphere of ESD is the least developed. Chapter 11 by Susan Santone and Chap. 23 by Cynthia Wood address this shortfall. Susan Santone explains and compares two economic paradigms: conventional and ecological. She explains major concepts and terminology associated with both paradigms as well as their goals and measures of success. She grounds her discussion of economics in the K-12 curriculum standards of the National Council for the Social Studies and the work of the Council on Economic Education. She also presents core concepts, guiding questions, and essential concepts for teaching ecological economics in elementary and secondary school. Cynthia Wood's chapter takes the content of Santone's chapter and places it in a university setting, extending the study of economics to include examination of the assumptions of the conventional economic paradigms. Wood's work gives us a rare picture of the personal insights and pedagogical techniques and skills that go into teaching economics from a sustainable perspective at the university level.

Chapters 2, 6, 7, 10, 16, and 22 describe leading-edge work in ESD in Canada. Collectively, they demonstrate that networking within the Canadian ESD community has moved geographically distant programs forward along similar paths as their leaders share lessons learned and build on one another's successes by adapting ideas and programs for their own local contexts. Their work has been synergistic rather than simply additive.

The Author's Voice

Many of the authors in this book recount their personal experiences, reflecting on the changes in practice, distilling their thoughts over many years of work, and sharing lessons learned. Part VII The Practitioner's Voice is written entirely from a personal perspective. These four chapters are written in the first person as are sections from other chapters (i.e., those by Charles Hopkins, Don Dippo, Gerry Connelly, and Ken Voorhis and this chapter by Rosalyn McKeown and Victor Nolet).

First-person narratives reflect clarity and honesty about who is observing and who is participating in the study, which is often hidden in third-person statements, such as "it was observed" or "it was decided." The shift from third-person report to first-person narrative has been underway for over two decades in the academic literature. Some fields, journals, and publishers are farther along in accepting first-person narratives than others; nevertheless, narrative is a well-recognized and respected form of academic discourse in education as well as many other social sciences.

Education for sustainable development is generally outside of the positivist research tradition,[6] which often thinks of researchers as remote and impartial observers. In the 1970s, social scientists became increasingly aware of the limitations of the positivist tradition, which produces quantitative data and often answers question of what, where, when, and how. Social scientists wanted to address questions of human agency—the capacity of humans to make choices and to impose those choices on the world. They sought meaning and understanding through contextual accounts, which could only be captured qualitatively (e.g., through narrative) including from the first-person perspective.

ESD explicitly supports constructive human agency that leads to positive social transformation. Thus, any collection of essays that purports to address education for sustainable development needs to include first-person perspectives and a clear recognition of their importance.

Concluding Remarks

The 23 chapters of this book give the reader insights into ESD in Canada and the United States. It is not a complete panorama—that would require a set of volumes encyclopedic in length. This book opens selected windows and vantage points for understanding high-quality ESD.

The authors in this book describe successful ESD programs. Their efforts were implemented at many scales—provincial to classroom. They encompass curriculum, program, policy, and practice. They all are a result of innovation. They provide models for elementary and secondary schools and institutions of higher education

[6] ESD research does use quantitative data, especially for advocacy with sectors of the education community that require or prefer numeric data.

to use and to adapt to the contexts of their own geographic locations. ESD is no longer an abstract concept; this book is filled with concrete examples of successful ESD initiatives.

Although the authors did not say it, you can read between the lines that it took years of dedication and hard work to implement their visions. It also took personal courage: courage to envision that which is possible but not mainstream, and courage to talk about that vision in such a way that others would join in making it happen. It took courage to change habits, behaviors, and ways of thinking. It took courage to say, "this is not working" and try something else. We know many of the authors of this book personally and professionally; they do not think of themselves as particularly courageous. They shared with us that they feel compelled, moved, motivated, etc., to work in ESD. One said, "It is the right thing to do" as if guided by an internal moral compass. Nevertheless, we think they are courageous.

As we were writing and editing this book, a few people asked us about controversy surrounding ESD and "push back" or rejection. Although in the early 1990s ESD met with resistance or at best indifference, from our perspective the resistance to ESD today is no greater than that for other educational change efforts. Some resistance to change is normal within the education community in Canada and the United States. This lack of controversy surrounding ESD is primarily so because those who are working in ESD have found ways to bridge the political divides that created many of the problems and challenges to sustainability that we face today. ESD pioneers have also learned to describe ESD as a solution to contemporary educational and societal problems.

Many educators today know that the path our world and our education systems are on "is not working" (i.e., leading us to a better future). They also know that continuing to do "business as usual" will make solutions in the future even harder to attain. We believe that the formal education community (i.e., ministries and departments of education, school boards, and schools) has lessons to learn from the pioneers whose work is described in this book—lessons about working toward the common good and providing quality education for the school children of today and tomorrow as well as creating a brighter more sustainable future. The leaders in formal education today need to act with courage to make changes that will secure that better future. The good news is that there are proven ESD models to follow and new ones yet to be created.

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