Teacher Perceptions of Education for Sustainable Development Teaching: Before and During the COVID-19 Pandemic

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Authors' Note

This research was supported by the Social Sciences and Humanities Research Council of Canada (SSHRC) [ID 17139]. The authors gratefully acknowledge SSHRC's support in funding this work through an Explore and Exchange Grant, which has contributed to advancing knowledge in education for sustainable development research. The views expressed in this article are those of the authors and do not necessarily reflect those of SSHRC.

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Abstract

This paper examines teachers' perceptions of Education for Sustainable Development regarding their practice before and during the COVID-19 pandemic. The study analyzes approaches to teaching Education for Sustainable Development and barriers faced. While teachers reported shifts in what was taught and how it was taught during the pandemic, most respondents remained committed to the core values of teaching Education for Sustainable Development. Barriers described by teachers before the pandemic included a lack of resources, time, and support, and barriers during the pandemic included a shifting and uncertain teaching environment burdened by video calls during lockdown periods and efforts to keep students safe during in-person teaching. Teacher insights included: spending regular time outdoors and framing the community as a classroom is a benefit for the health of students and their education; learning is inherently more powerful and productive when done socially; and teaching with technology has benefits but should not be the sole medium in which learning occurs. The aspects of school that were taken for granted and that were greatly diminished during the pandemic, social learning, guest speakers, field trips, and a predictable learning environment, were also those elements that were reported as being at the forefront of teachers' plans for their students when the pandemic ended. This research may benefit teachers, school leaders, policymakers interested in Education for Sustainable Development, and scholars planning future research.

Keywords: teacher perceptions, Education for Sustainable Development, COVID-19

On March 23rd, 2020, Manitoba K-12 schools entered an unprecedented period. The government announced that classes for all Kindergarten to Grade 12 students would be closed for three weeks. Seven days later, all in-person classes were suspended for the remainder of the school year and moved to remote learning (Manitoba Public Health, 2020). While students returned on September 8th, the pandemic continued to impact how schools operated for over two years, with additional shifts between lockdown and in-person schooling.

This period of the COVID-19 pandemic created complex challenges for teachers. At the outset of the initial lockdown in the spring, teachers were asked to shift to an unfamiliar teaching mode: trying to teach students through video calls and online learning platforms. For many, this was new terrain, and they had to adapt quickly, trying to keep students engaged and interested through a screen. A colleague described this moment for teachers as "trying to fix the plane while it's still in the air."

The government announced that students would return to in-person teaching in late August. Teachers quickly scrambled to alter their classrooms and common areas to newly announced school restrictions and protocols. Teachers now faced the prospect of educating students in an environment in which student interaction was limited, with tables removed and desks separated. Students had to be regularly screened for symptoms of COVID-19, protocols had to be enforced, shared materials had to be continually sanitized or removed entirely, and music programs that included wind instruments and choral singing were scrapped and replaced with alternative programming or cancelled. All aspects of schooling had to be rethought, and all measures had to be taken to avoid a COVID-19 outbreak. An additional layer of stress impacted teachers with children, partners, or elderly parents having medical conditions that made them more susceptible to hospitalization or death (Eblie-Trudel & Sokal, 2023). Teachers had to somehow create an environment where students could learn while at the same time keeping them protected from the threat of COVID-19.

In the fall of 2019, just months before the SARS-CoV-2 virus emerged (the virus that causes the respiratory disease named coronavirus disease 19 [COVID-19]), a series of global protests erupted demanding action in the face of an existential threat, the climate crisis. Protests occurred in 4,500 locations across 150 countries (Milman, 2019). Laville (2019) claims that the climate strike that occurred on September 20, 2019, just before the United Nations Climate Summit, with 4 million people participating worldwide, is likely the most significant climate strike in history. The momentum of the climate movement grew, but when the pandemic arrived, climate activists went into lockdown, continuing to organize and plan for future action. While the climate movement has been largely youth-driven (and was born out of the Fridays for Future coalition and many other climate actions that were taking place across the world), many teachers are working to raise awareness and action through various pedagogical approaches to support a transition to a sustainable future. Those teachers who work for sustainability are the subject of this investigation. We wanted to know the impact of the pandemic on teachers who are committed to promoting education for sustainability.

Our research investigated perceptions of teaching sustainability before and during the pandemic. Specifically, we wanted to know how these teachers described their teaching for sustainability before and during the pandemic. We were also curious about how they think they might teach after the pandemic. In the pages that follow, we will provide a review of the research literature that includes a global and local (Manitoba) history of Education for Sustainable

Development (ESD)[1], the aims, features, and critiques of ESD and the major studies on ESD. Following the Methodology section, we present our findings of ESD teaching experiences before and during the Covid-19 pandemic.

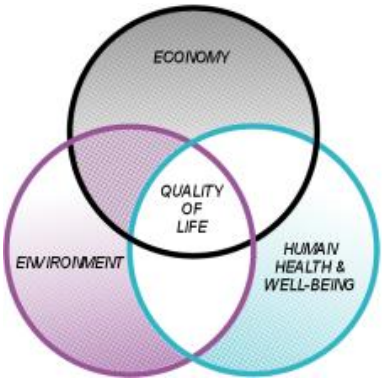
Literature Review

What is Education for Sustainable Development (ESD)?

UNESCO defines Education for Sustainable Development (ESD) as education that "employs action-oriented, innovative pedagogy to enable learners to develop knowledge and awareness and take action to transform society into a more sustainable one" (UNESCO, 2020, p. iii). The term 'sustainability' was introduced by Lester Brown, founder of the Worldwatch Institute, in the early 1980s. Since then, the notion of a sustainable society, one in which the human needs of the present are limited to maintain the survival of future generations, has been adopted into educational policy and research as a term of reference. Efforts to create a global framework for humankind to live with the natural world and within carrying capacity (living organisms that a region can support without ecological degradation) coalesced in the Brundtland Report (World Commission on Environment and Development, 1987) and launched into the wider global consciousness with the United Nations Earth Summit in Rio de Janeiro in 1992. ESD frameworks and practices have been updated and relaunched in the twenty-first century through the Millennium Development Goals (2000-2015) and the Decade of Action for Sustainable Development and Sustainable Development Goals (SDGs) (2016-2030) (United Nations, 2015). Visually, ESD is often presented as a Venn diagram (Figure 1) with three overlapping circles of environment, economy, and human health and well-being, with the center of the overlapping circles containing quality of life.

Figure 1

Education for Sustainable Development (Manitoba Education, n.d., p. 16)



At present, ESD is the preferred term by Manitoba Education in their published documents, resources and operational language. A significant push towards expanding sustainable development efforts in the province of Manitoba and from the Department of Education was made in the early 2000s. In 2005, the Manitoba provincial government under the national Canadian

[1] While there are many valid pedagogical approaches to address the climate crisis and issues of sustainability and equity, we have selected Education for Sustainable Development (ESD) for this study since it best represents the philosophy of the teachers interviewed. ESD is also the teaching model promoted in the Manitoba curriculum, following the United Nations Educational, Scientific and Cultural Organization's (UNESCO) model for sustainability education.

political party, the New Democratic Party (NDP), was ranked as the number one regional government in the world for combating climate change (Buckler & MacDiarmid, 2012). Manitoba's well-regarded approach was achieved through the appointment of consultants responsible for overseeing ESD in the province, including coordinated professional development, a robust website with resources and distributing resources including funding for ESD projects. Following the election of the Manitoba Progressive Conservative Party in 2016, this position was ended, as were foci around ESD from Manitoba Education. The Government of Manitoba continues to host a website dedicated to Education for Sustainable Development featuring resources (See http://www.edu.gov.mb.ca/k12/esd/ for more details).

Principles of ESD

The central aim of ESD is to utilize educational spaces inside and outside of the classroom to engender knowledge, attitudes, and actions that transform the behaviour of individuals into those that reduce their personal and collective negative impact on the planet. Teasing apart these aims, Zhang (2019) summarized and listed the ultimate goals of ESD as: (1) establish sustainable development values; (2) learn scientific knowledge of sustainable development; (3) cultivate sustainable learning ability; (4) practice a sustainable lifestyle; (5) pay attention to and participate in solving practical problems of sustainable development. ESD aims to design learning experiences that pull these elements together for learners to demonstrate responsible citizenship in which sustainability is a central facet for the sake of natural resource conservation at the local and global level for present and future generations. (Bourn, 2008; Liu & Qi, 2021)

While interpretations and resulting teacher practices of ESD vary across the globe (Kopnina & Meijers, 2012), there are a number of features common to instructional practices. Alampei, Malotidi, Psallidas, and Scoullos outline five elements that are often found in ESD pedagogy, namely:

> (1) interdisciplinary and holistic; (2) learner-centered and participatory; (3) value-driven, promoting critical thinking and exploring all stakeholders; (4) forward-looking, promoting medium and long-term planning; (5) locally relevant, encouraging multilateral collaboration among schools, local actors, and authorities, scientific communities, private sector, and NGOs, etc. and revealing global issues and connections as part of everyday life, whether in a small village or a large city. (2013, p. 110)

In addition, work by Kohl and Hopkins (2019) has outlined how ESD has been a successful framework for drawing in Indigenous perspectives to K-12 education, which has also been supported outside of the global north (Vaioleti & Morrison, 2019).

An effective strategy for the widespread adoption of ESD is a whole-school approach. Mogren, Gericke, and Scherp (2019) compared whole-school approaches to those of individual and uncoordinated efforts. They concluded that the benefits of a whole-school approach went beyond just knowledge, attitudes, and actions conducive to ESD; they also concluded that school improvement was measured higher than schools without standard ESD practices and had more significant potential for teacher support networks and collaborative professional practice. Metz et al. (2010) analyzed ESD in Manitoba and a whole-school approach at a school in Costa Rica, where ESD permeated all school subjects. The authors concluded that knowledge and behaviours were far more pro-environmental due to the whole-school approach, advocating for ESD to become the foundational subject in merging grade 10 social studies and grade 10 science in the Manitoba curriculum. Doing so would:

> make available the time needed to overcome scheduling difficulties and allow for a significant participatory component in the local community… [and] could lay the foundation for good science learning, civic participation, and awareness of, and informed action towards, the long-term health of local communities. Greater awareness of environmental issues should give such a proposal the necessary currency and advance a long overdue innovation in Manitoba's schools. (Metz et. al., 2010, p.166)

Indeed, holistic, interdisciplinary approaches to ESD are advocated widely in the literature (Borg et al., 2012; Burton, 2019a; Summers et al., 2005), which begins with teacher training programs (Agirreazkuenaga, 2019; Summers et al., 2005), and continues through in-school professional development learning (Summers et al., 2005).

Researchers have also made the case for the weaving of ESD with citizenship education (De Poza-Vilches et al., 2019; Westheimer, 2020). Westheimer (2020) points to significant overlap between the United Nations Sustainable Development Goals (SDGs), and notions of citizenship, whether global or democratic. SDG target 4.7 states that:

> All learners should acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity. (United Nations, 2015)

Effective ESD instruction may include learners exploring beyond individual interaction with the natural world to understand and act in ways that benefit people and the planet as a whole, what Westheimer (2020) calls "knowledge, capacities and dispositions associated with a robust, civically engaged life" (p. 296). Documents such as the Earth Charter (United Nations, 2000), which emerged from the 1992 Earth Summit, explicitly outline how democracy, human rights, and environmentalism are overlapping causes.

Barriers to ESD

A central tenet of ESD is its interdisciplinary nature (Summers et al., 2005). Research indicates variance in interpreting ESD and its application in classroom practice, with many studies suggesting that as youth move through the education system and subject disciplines become more siloed, ESD is increasingly limited to courses in the natural sciences or social studies. These findings are evident in Manitoba, where the siloing of subjects into separate curriculum areas prevents effective teaching of ESD (Babiuk & Falkenberg, 2011; Belton, 2013; Burton, 2019a; Eckton, 2016; Hart, 2002; Jacques, 2012; Kraljevic, 2011, Metz et al., 2010; Michalos et al., 2015). Traditional teaching practices limit ESD to direct instruction within a classroom and single subject, meaning that holistic, place-based and critical perspectives that integrate economic and social aspects of ESD are marginalized (Anyolo et al., 2018; Ferguson et al., 2021; Jetly & Singh, 2019).

Vare and Scott (2007) parsed apart the definition of ESD into ESD1 and ESD2. The authors found that ESD with a strictly environmental focus (what the authors called ESD1) was far more prevalent than ESD2, which included an intersection between the environment, society and politics, where teachers use this lens to encourage learning that is critical and explores or tests ideas around sustainable living. Other studies suggest that narrowing ESD to environmental focuses is due to the prominence of ESD within science curricula, often taught in a "fact-based" style, where the nuance of values present in social studies courses would both deepen and broaden

understanding (Borg et al., 2012; Summers et al., 2005). The ability to utilize science and social studies approaches simultaneously is stymied by subject disciplines siloed in the senior years (Manitoba Education, n.d.).

Overwhelmingly studies have indicated that a lack of knowledge, resources, and time are the primary barriers to the incorporation of ESD into classrooms (Agirreazkuenaga, 2019; Anyolo et al., 2018; Borg et al., 2012; Larsen, Skamp & Simoncini, 2017; Summers et al., 2005; Vucic, 2019). This is mirrored in the data from Manitoba, where several studies have found that a lack of knowledge, time, or an overly restrictive curriculum has prevented the effective inclusion of ESD into the classroom, particularly at the senior years level (Babiuk & Falkenberg, 2011; Belton, 2013; Burton, 2019a; Eckton, 2016; Hart, 2002; Jacques, 2012; Metz et al., 2010; Michalos et al., 2015).

ESD grew out of a desire to connect youth with an understanding of the natural world and the human role in it initially through "environmental education" (Stapp, 1969). Since that time and in part as a result of concerns around ESD being incompatible with changes required to address the environmental/climate crisis (Babiuk & Falkenberg, 2011; Homer-Dixon, 2020; Jickling, 1994; Stein, 2022), there has been a diversification in approaches to the knowledge, skills, and attributes associated with ESD. These include but are not limited to sustainable living (Stone, 2010), ecoliteracy (Goleman et al., 2012; Orr, 1992), outdoor education (Breunig et al., 2015), place-based education (Grunewald, 2003; Gruenewald & Smith, 2014), ecojustice education (Bowers, 2001, 2002; Martusewicz et al., 2011), and ecopedagogy (Kahn, 2008, 2010; Misiaszek, 2017, 2020). More recently, UNESCO has sought to draw elements of climate change education into ESD (Stevenson et al., 2017; Reid, 2019), as evident in the Berlin Declaration on Education for Sustainable Development (2022). While acknowledging this proliferation of theories and frameworks, this research utilized an ESD framework, as it remains the lens through which the curriculum is designed in Manitoba.

Teacher Perspectives on ESD

Teachers are often regarded as playing a crucial role in the presence of effective facilitation of ESD, and despite significant barriers, many persevere (Anyolo et al., 2018; Edwards et al., 2020; Larsen et al., 2017). In Manitoba, Jacques (2012) called these individuals *Green Don Quixotes*—ESD leaders who shouldered the burden of representing ESD in schools. Often, classroom teachers were determined to be highly knowledgeable and competent in ESD yet struggled with carrying the weight of such work, which often bled beyond the scheduled school hours of the day, leading to burnout.

Studies across the globe that have sought teachers' perspectives on ESD repeatedly found the belief that it was valuable content and experience for learners, yet there was a gulf between values and classroom practice (Belton, 2013; Boon, 2011; Gustafsson et al., 2015; Jacques, 2012; Larsen et al., 2017; Vucic, 2019). Conclusions are mixed on links between self-reported confidence and competency in teaching ESD, with Boon (2011) and Perkasa et al. (2020) finding that teachers overestimated their capacity to teach ESD effectively.

When barriers to ESD are addressed, such as additional time, professional development, whole-school approaches and supportive leadership, ESD can flourish (Borg et al., 2019; Burton, 2019b; Edwards et al., 2020; Green & Somerville, 2015; Larsen et al., 2017; Morgen et al., 2019; McNaughton, 2012; Perkasa et al., 2020; Sund & Wickman, 2008). A culture of support that models and encourages creative approaches to ESD, such as experiential, problem/project-based

learning and place-based education, has also been detailed to increase competency and enthusiasm from teachers and learners (Green & Somerville, 2015; McNaughton, 2012).

ESD and COVID-19

Research on ESD is emerging through the pandemic. Beasy and Gonzalez (2021) interviews with eight self-selected teachers engaged in ESD in Australia identified four common themes: changes to human behaviour are possible given a set of societal circumstances; they had hope that an extended lockdown would allow the planet to heal; perceptions of unequal access to healthcare became more evident across the globe; and that a slow-down in work, made possible by lockdown, had provided more time for reflection on their teaching practice.

The emphasis on using the global pandemic as a way to reflect, plan, and increase ESD capacity in education was also the focus of a paper by Kaukko et al. (2021). The authors mapped out three possible pathways for ESD in the 'post-corona world':

> "(1) to prepare children, young people, and adults to go back to the old ways (assuming the [pandemic] crises will pass); (2) to prepare them for new ways to live in, through, with and/or after crises; (3) to prepare them for an uncertain post-crisis future by travelling at the slowest possible pace commensurate with making enough change to satisfy enough people, while denying the excesses of the desires of the conservatives and the radicals." (p. 1567)

Education, the authors claimed, is partly responsible for the 'eco-crisis' but new 'practice architectures' that focus on the possibilities that a global pandemic has presented should act as a catalyst for "drastic, global changes in education" (p. 1568), in which ESD in its holistic, interdisciplinary approaches fits well.

The last two noted studies of the COVID-era focused on the impact of the pandemic and, specifically, lockdown on youth. Rios, Neilson, and Menezes (2021) reported vastly different experiences with nature during the pandemic, determined by socioeconomic backgrounds. For example, while many youths reported fear and anxiety around the pandemic, this was mediated by opportunities to spend time in nature. Time in nature was more prevalent in youth who resided in rural areas or were from wealthier families who had access to nature spaces. In an action research study, Servant-Miklos (2022) found that youth who engaged in an intervention of ESD experiences prior to the pandemic demonstrated increased resilience throughout the early period of lockdown. The author suggested that ESD,

> "can catalyze a change of perspective on the purpose of education [...] bring about greater concern for others in times of crisis, help to develop greater awareness of the systemic underpinnings of crises, and spur some students to take concrete action for change" (p. 18).

However, findings indicated that after an extended period following the end of the ESD intervention, youth began reverting to old and un-resilient patterns of thinking. The next section outlines the research methodology used in this study.

Methodology

Research Design

This study was conducted in Winnipeg, Manitoba, between May and June 2021, just over a year into the declaration of the COVID-19 pandemic. The months prior to the launch of our study represented a period in which teachers shifted back and forth between online and in-person contact.

Using qualitative content analysis, the study was designed to describe the perceptions of teachers who are committed to promoting education for the sustainability of their classroom practices and the barriers they faced in implementing those practices before and during the pandemic. We also designed the study to describe teachers' predictions of how the experience of teaching during the pandemic may impact the way they teach ESD in the future. Qualitative research strives to locate a phenomenological appreciation of a specific context, and describe the perceptions and lived experiences of the participants (Schreier, 2014). ESD teachers studied in this research shared their experiences in two semi-structured and in-depth video call interviews. The participants of this study included seven public education teachers: four in high school, one in middle school, and two in elementary school. Participants were interviewed individually via Zoom on two occasions in May and June of 2021 for a total of 14 interviews. The participants were identified through snowball sampling with the help of a prominent teacher for sustainability in Winnipeg and the education director of a local environmental education centre. Snowball sampling was conducted according to the following inclusion criteria: (a) teaching in a public K-12 school year 2020-2021; (b) teachers who integrate sustainability education into their practice; (c) teachers who were employed as teachers within the city of Winnipeg. The transcripts of teacher interviews are the data source for this paper. Seven teachers were recruited to participate. These teachers were identified as those who integrate sustainability education into their practice. Participants included in this study were those currently employed as teachers within the Winnipeg area. Of the seven teachers involved in the study, five of them were female, and the other two were male. Two of the participants were elementary teachers, two were middle teachers, and three were high school teachers. Participants received their interview transcripts to review and confirm their responses. Interviews were conducted that focused on the implementation of sustainability as a provincial K-12 cross-curriculum priority. We investigated perceptions and self-reported classroom practices of teachers relating to ESD through the following research questions: (a) How did teachers in K-12 school settings implement ESD in their classrooms before and during the pandemic? (b) What were the barriers that teachers perceived they faced in the implementation of ESD in the curriculum in each of these contexts? (c) How will the experience of teaching ESD during a pandemic change the emphasis on sustainability and global citizenship or how ESD is taught in a post-pandemic world? Semi-structured interviews were conducted using questions and prompts (see Appendix A).

Data Analysis

The qualitative content analysis based on the results from the individual cases was coded and categorized into themes. Qualitative content analysis seeks to aid in the validity and reliability of inferences through a system set of techniques for managing data (Schreier, 2014). In this study, qualitative content analysis was undertaken to apply Creswell and Guetterman's (2019) six generic strategies: (a) organize data for analysis (per interviewer question); (b) read through data; (c) begin coding; (d) generate categories and/or themes based on coding; (e) decide how themes will be presented; and (f) interpret the data. No data analysis software was used in the analysis of the transcripts. The interview audio was transcribed and reviewed for an overall understanding. Transcripts were then organized into units (individual teacher interview transcripts), and then each unit was coded. Codes were categorized into groups based on similarities. Transcripts were reviewed by participants for accuracy. Participants reviewed the codes for accuracy. Transcripts, along with the identified codes and categories, were examined and confirmed by both researchers of this study. Data categorization and interpretation were organized, confirmed, and reported by a careful review of the data collected.

Findings

In the following section, we discuss the findings of ESD teaching experiences before and during COVID-19. In the first subsection, we explore the commonalities of ESD teaching experiences before COVID-19 and common philosophies of teaching ESD, barriers, and catalysts. The second subsection explores the commonalities of ESD teaching experiences during COVID-19, examining the struggles, pandemic pedagogy, positive aspects of teaching ESD during the pandemic, and general takeaways of teaching ESD during COVID-19.

ESD Teaching Experiences Pre-COVID-19

Several commonalities emerged around how classroom teachers approached ESD instruction. Early and middle-year teachers (EY and MY) tended to start their lessons outdoors and provide space for learners' questions to emerge, which would then drive learning back in the classroom. This approach centred on nature and the community in ways that drew in ESD to the learners' lives. One teacher enthused about the potential of the local area to inspire and act as a catalyst for learning, stating "And just the potential is, in our community, there's so much out there within a two-hour round trip walk or two-hour round trip bike ride. Geez. There's so much you can see." Another teacher spoke to the power of the outdoors to make meaningful personal connections: "I just feel like when you are outside or when you're talking about environment or place, literally every person in the room can connect to that." Walking or hiking in the community as a starting point was found to be easier when built into the schedule, where learners and families came to see it as normalized. The EY and MY teachers who did this found that their students began to dress for the weather and understood the community as their classroom. Community experiences were supplemented with guest speakers and experts in relevant fields of knowledge (3 respondents).

Across all age groups, there was a recognition that inquiry and a project-based approach fit well with ESD (6 respondents). Inquiry allowed learners to explore questions they had about nature and the community deeply and tangibly. The impact of this was that students began to embody the role of stewardship. For example, one EY teacher spoke of learners becoming concerned with urban sprawl taking away natural habitats for native animals, while another shared how a ditch, renamed by the students as "lava land" became a favourite place for the class to walk to and spend time with; when construction that changed the topography of the ditch happened between visits, students were "livid." One school division had a purpose-built land-based learning centre, which featured prominently through several interviews as a space which was frequently visited to engage learners on the land, as was a larger outdoor education centre located in the south of the city, where teachers from Grades 1-12 and across school divisions would plan visits (4 respondents).

In the Senior Years (SY), outdoor or community visits were tied to a topic and used as a catalyst for action projects, or threaded throughout a unit to deepen context and provide space for hands-on learning. One theme that emerged from the interviews was that teachers at the SY were more intentional than EY or MY about how and why their classrooms explored ESD, purposely linking to specific curricula, learning outcomes, organizations with an environmental focus, or spaces that a unit could orient around. One example was a SY teacher who curated a "take action project" unit connected to the "Caring for Our Watersheds" competition, resulting in students having their community action project funded.

Philosophy of Teaching

Philosophically, every teacher valued ESD as a priority in their work. Two teachers stated that passion for the environment was the primary reason for them entering the field of education. It was clear that every teacher could speak authoritatively about why this work was important and the pedagogical rationale for how they facilitated ESD with learners. One teacher spoke to how ESD should be taught proactively as a way to extricate youth from being encultured into a wasteful society; similarly, another saw ESD as a valuable tool for expanding youth horizons on the way the world works, and the implications of society and themselves in particular in those systems; a third was impacted by the work of Richard Louv's "nature deficit disorder" as a motivator for getting learners outside every day. A teacher in the SY with high-level sciences on their course load spoke to the teaching of experiential and hands-on learning as "quality education [...] because if you aren't addressing the bigger problems or issues in our world, you know, I think you're missing an opportunity with kids." This teacher found that striking a balance between direct instruction and inquiry provided both curriculum content knowledge and space for deep engagement in topics of value to youth.

The commitment to ESD was maintained despite a number of barriers (which will be discussed later), owing to the benefits that teachers saw from students. Two teachers spoke to children being "transformed" as a result of being outside every day in terms of behaviour and engagement in their learning. The stewardship of spaces went home with learners, with one teacher referencing that their child took their family on walks to places that their class visited. To reach the point where teachers became recognized leaders in ESD, some mentioned that getting over the perspective of the curriculum as the starting point and sole arbiter of lesson plans provided them with the freedom to incorporate more ESD into their classrooms and be more responsive to student needs. One respondent reflected, "I started to shift my teaching practice away from the curriculum as much and more thinking of those important ideas and then how to work the curriculum towards fitting those ideas."

Aligning with Kohl and Hopkins' (2019) findings, almost every teacher mentioned both the opportunity to incorporate Indigenous worldviews and the importance of doing so in their ESD teaching. This was particularly evident when teachers described the value of students reconnecting to the land and the role of land in reconciliation. It was not clear in the interviews whether valuing the teaching of Indigenous perspectives emerged prior to, or during their time in education or teaching ESD. Further targeting of questions around how teachers draw in elements of Indigenous perspectives into Manitoba ESD education would be a worthwhile line of future research.

Barriers

Many barriers and catalysts to teaching ESD that emerged in the literature review were present in interviews. The time commitment to prepare for ESD instruction (5 respondents), worries that ESD took time away from teaching "basic" skills such as reading, writing, and mathematics (2 respondents), and fears of being questioned by parents on why traditional subjects and pedagogy was not the focus (2 respondents). Teachers also spoke more generally to concerns about the role–or lack thereof–of ESD in the school system. This included a dearth of curricula outcomes explicitly linked to ESD (which could place them in vulnerable positions with unfriendly administrators or families), challenges of discussing topics like climate change that risked exacerbating already noticeable increases in student mental health struggles, or a lack of resources that would allow their programs to be effective. On this last point, teachers raised scheduling, lack

of resources, and struggles in accessing Indigenous elders as barriers. One teacher spent a significant portion of her time researching and applying for grants to increase the opportunities for learners to experience ESD. Three teachers, all from the same metro Winnipeg school division, expressed frustration in their inability to secure buses for field experiences, with one teacher desiring a bus that would be available before 9:30 am with a return time of no later than 2:00 pm.

One teacher raised an issue regarding a perceived lack of attention that ESD received in post-secondary Bachelor of Education programs, using her experience with recent teacher candidates as an example. A 2012 Report by the Council for Ministers of Education found that in Faculties of Education there was, "modest but promising progress toward reorienting teacher education to address education for sustainable development" but that "ESD adoption is still primarily an individual faculty member commitment rather than a faculty-wide response" (pp. 3-4). In 2019 the Association for Canadian Deans of Education published a position paper acknowledging that education was "complicit" in the climate crisis and environmental emergency and amongst other pledges sought "to supporting each other within ACDE to transform our practices in ways that add to the equitable and sustainable future of the planet, through reporting and sharing challenges and good practices" (p. 3).

As discussed in the literature review, the double-bind of weak curricula connections (which vary from grade to grade depending on curriculum) and the siloed nature of curriculum and instruction of courses (particularly in the Senior Years), meant that teachers had to be highly creative in lesson plan design, well-supported by administrators, go to greater lengths to demonstrate the benefits of their programming, or be free from or resistant to scrutiny for them to infuse their work with ESD related experiences.

Two teachers echoed findings in the literature review of ESD being pushed to the margins in other classrooms or schools and taught as an "extra-curricular," an approach that was distinctly pushed back against by these interview participants. As the participating teachers were identified for their proficiency in ESD, pedagogical and content knowledge was only raised in one interview as a personal barrier to instruction.

Interestingly, only two teachers directly referenced assessment in their interviews. One spoke to the multiple ways they tracked and presented assessments to learners and families, which included documentation trails, co-created assessments between teacher and student, self-assessment and the use of rubric; this teacher, in particular, was informed by the work of Susan Drake (2014), who has published on effective classroom assessment through inquiry. Conversely, another teacher spoke to the challenges of aligning assessment to ESD practices, lamenting the siloing of curriculum on the provincial report card and the narrow opportunity to speak to the improved learning behaviours that present in outdoor education.

Catalysts

Support from adults outside of the classroom remained important. Positive administrative support (4 respondents) was offered as a catalyst, which speaks to the importance of prioritizing ESD at the divisional or provincial level with the intention that this permeates school plans and professional learning through school leaders. Only one of the interviewees was ambivalent about their current level of support from the administration, but all other teachers (6 respondents) seemed content in their school building and that they had found the space they desired to implement the ESD program that they wanted. For example, two teachers detailed how their ESD focus had been present to some extent throughout their teaching careers, but through professional growth and

support, it had flourished in their current teaching assignment. Three participating teachers had work experience in ESD-related fields and incorporated that learning into their current planning. Additional catalysts mentioned included having students for multiple or all their courses, which provided the capacity to integrate the curriculum into wider inquiry projects (2 respondents). Support is extended to families, too.

Two teachers expanded the places they were able to access for outdoor learning by cycling with their classes. This was made possible by parent chaperones.

ESD Teaching Experiences During COVID-19

The Struggles

Healthcare protocols initiated in schools during the pandemic had major implications for the teaching practices of participants, and for many, this meant teaching and designing learning that ran contrary to their experience of what good teaching for ESD looked and sounded like. Most significant of which was that teachers were unable to consistently plan for or execute exploration of the community as an initiation of, or as scaffolding for classroom content on ESD (6 respondents) and field trips (6 respondents). Social distancing in the classroom meant that there was a definite curtailing of social learning (5 respondents) through group discussions or hands-on learning (2 respondents), and a shift away from whole-class learning to individual work. Two teachers noticed that they were spending more time talking in classrooms than students (2 respondents), which for both philosophical and pedagogical reasons they did not believe led to engaging learning environments (4 respondents). One EY teacher stated:

> [There is] not a lot of spaces that we can go to, not a lot of things that we can engage with, you know, even if you think about games that you can play with kids and stuff like that. We're very limited to, you know, if it's involving kids touching the same object, we can't necessarily be doing that. So yeah, it's just a very soiled experience for most kids.

Another SY teacher listed the events that she and her learners benchmarked the year with that were cancelled because of the pandemic: whole-school assemblies, Earth Day, learning to maintain the Indigenous circle garden, and opportunities for student leadership with take-action projects. Interestingly, two teachers identified that they reverted to traditional teaching methods with an emphasis on direct instruction of mathematics and literacy without integrating ESD. [Name]

Pandemic Pedagogy

What emerged in most of the interviews was the hardship that both teachers and learners faced. Pedagogical practices undertook a significant shift for many teachers during the pandemic. Few teachers indicated that it was possible to use the weeks of low COVID-19 case counts to revert to their progressive style of teaching (referred to as an approach that encourages students to reflect on what they are learning, investigate their questions, and collaborate with their peers). Youth mental health was mentioned in a variety of descriptions, such as "lack of capacity," "overwhelmed with negativity," "survival mode," "malaise," "depression," and "anxiety," and was more pronounced with SY teachers than those at EY or MY. A SY teacher expressed the current state of his learners: "Kids are, their despair cups are so full that I don't, I'm really cognizant of overloading their cups." Teachers at the SY identified adaptations in content and pedagogy that mental health struggles required. These included increased use of articles as discussion starters (2 respondents), videos (2 respondents), independent inquiry projects (2 respondents), and experimenting with the flipped classroom (1 respondent); there was a desire by one teacher to

"simplify" their teaching for both student and their own mental health, with another teacher expressing that well-being became the priority in their class. Teachers were designing units with less explicit focus on ESD, with greater emphasis on the ability of student learning to pivot between in-person and virtual classes; the threat of shifting to remote learning one day to the next became a primary consideration. At times, ESD was avoided as a topic for learning due to it being a "gloomy" topic. Teachers' rhetoric emphasized "hope" and students as "part of the solution," pitching assignments to students that made these elements a focus or allowed escapism through utopian visions for the future.

Pandemic Positives

Nevertheless, some positive shifts did occur. As the science of how COVID-19 spread as an airborne disease became clearer, outdoor learning was recognized by schools as the safest space to learn. As a consequence, many teachers were empowered to get learners outdoors during the school day, building morning walks into the schedule. Yet one teacher spoke of the fear that community members would report them to the school for not having students' social distance while out in the community, confiding, "There's always people walking around the school, and it's, we're quite under the microscope." Some teachers spoke of having developed new skills or understandings that they would take with them into 'post-COVID teaching.' These included being more capable of reading students' body language and being more adept at using technology as an organizational tool or for outreach. A number of participating teachers admitted to pitching away from an ESD focus toward the Black Lives Matter movement. A French Immersion teacher also discovered that facilitating their language program while being outdoors broadened the opportunities for vocabulary development.

Takeaways from COVID-19

Perhaps unsurprisingly, the narrowing of possibilities for ESD teaching during the pandemic presented several epiphanies for interviewed teachers, but interestingly, these perspectives were not explicitly located in their work. For example, the role of the human/nature divide. One teacher relayed how he linked the pandemic response to ecological crisis: "What I tried to have them acknowledge is that a lot of the strategies we've learned from COVID, both global cooperation and communication will very likely need to be applied to address climate change" and that "individual action is not enough." Another teacher echoed this, saying they believed now more than ever that "worldviews do shape actions" and that education plays a critical role in this work.

There was also greater awareness of the central role that schools played in supporting social, emotional and academic well-being in youth, with teachers highlighting the need for students to learn in person (2 respondents) and that the social aspect of school for youth was probably underestimated before the pandemic. There were mixed responses regarding the role of technology in the classroom, with one teacher more open to its utility for organizing students' learning and another seeing the continued potential of drawing guest speakers into the classroom. Another teacher committed to using less technology, stating, "Here's the thing: anything that's good about virtual meetings, you can probably do in a classroom and do better."

Pedagogically, teachers expressed their desire to double down on ESD teaching once it was safe and logistically possible to do so and that outdoor and community-based learning should be a part of the school day (4 respondents). One teacher enthused about how they wanted to orient future ESD around reconciliation and learning on the land, claiming:

> I'm really going to come [at], and everything around sustainability global citizenship from the perspective of connecting the importance of connecting with the land, connecting with other people, connecting with his importance of slowing things down and of connecting two things through story… at the end of the day you can't get the sustainable development without human connection between people.

Discussion

Without the passionate and intentional work of ESD champions, youth knowledge, attitudes and actions on ESD would be diminished. Without this work, efforts at promoting the idea that injustice lies at the centre of the climate crisis and the wider work of climate change mitigation and adaptation would all look bleaker in whichever part of the globe one inhabits. While we, as researchers, are cautious not to draw too significant of conclusions based on the small sample of participants, the interviews with seven educators in Manitoba resoundingly supported the wider research around catalysts and barriers to ESD education reported in the literature review. Though there were repeated stories of significant shifts in what was taught and how it was taught during the pandemic, the commitment to "what matters" (Sund & Wickman, 2008) may have shifted for some of our participants, but the commitment to children remained a primary concern of these educators. This was despite a reduction in resources, in-person contact time, and support, along with the ever-changing landscape for teaching through the 2020 to 2021 school years.

As the literature detailed in the first half of this paper stated, teaching ESD might be vital in times of social and ecological crises, but the structure of public schooling and networks of support are not conducive to nurturing it. During the COVID-19 pandemic, of the five elements of ESD that Alampei et al., (2013) detail, the first three (interdisciplinary and holistic; learner-centred and participatory, as well as value-driven; promoting critical thinking and exploring all stakeholders) were able to continue and even deepen during COVID-19 as opposed to before, while the final two (forward-looking, promoting medium and long-term planning, and locally relevant, encouraging multilateral collaboration among schools, local actors, and authorities, scientific communities, private sector, and NGOs, etc., as well as revealing global issues and connections as part of everyday life, whether in a small village, or a large city) were curtailed due to the limitations of knowing the future of education and communities and being isolated from engaging deeply in them. Educators simply were not able to design deep and immersive experiences to the extent they had pre-pandemic, or wished to because of the instability of not knowing whether they would be in schools or remote from one day to the next.

What was interesting to note was that the COVID-19 pandemic itself was not used as a topic for inquiry for many of these educators, despite the abundance of resources and entry points for inquiry. Doing so would have broadened the scope of teaching to meet Vare and Scott's (2007) aim of meeting ESD2, where the content was drawn from the intersection of environment, society and politics, as would Westheimer's (2020) consideration of citizenship and ESD overlap in the Sustainable Development Goals. Many of these teachers were attuned to the needs of their learners and instead decided to begin with what students needed at that particular moment: remaining committed broadly to ESD, but looking at other content areas as a distraction from the horrors playing out in their communities. This finding supports the conclusions of Servant-Miklos (2022) who claimed that teaching ESD during the pandemic can change the objectives of education. In this way, as participating teachers in this study under "normal teaching conditions" were dedicated to teaching ESD in order to equip their learners to engage meaningfully in the world as it is and might be, during the pandemic, this practice was adjusted in response to the mental and physical

health needs of their learners in the moment. All were committed to re-engaging deeply and meaningfully in their ESD work when it was safe to do so.

Digging through the responses from these teacher interviews, epiphanies emerged: spending regular time outdoors and framing the community as a classroom is good for the health of students and their education; learning in K-12 is inherently more powerful and productive when done socially; technology is a wonderful tool, but should not be the sole medium in which learning occurs. When what teachers took for granted before the pandemic—social or communal learning, sourcing guest speakers, field experiences, a predictable learning environment from one day to the next—crystalized how respondents would engage in their work once restrictions were lifted.

Conclusion

What remains to be seen is how the pandemic impacts the possibilities open to teachers, the focus of national and regional governments to commit to an ESD focus in K-12 and the capacity and interest in youth to ESD learning itself. For example, will community and online resources for ESD expand or shrink? Will the economic and social impacts of COVID-19 lead to greater emphasis on "back to basics" education? Will youth and families determine issues or content as of more importance? The Province of Manitoba's abandonment of Bill 64 in the summer of 2021, which would have removed decision-making from local school authorities in the metro Winnipeg area, and focused on a "back to basics" approach to K-12 education, as well as the failure of anti-vaccination/conspiracy theorist school board trustee candidates in fall 2022 suggest a platform for permanently embedding ESD in Manitoba curriculum is possible, despite much regression from its primacy in the late 2000s and 2010s. Yet this is also contrasted with a surge in the "Parental Rights Movement" in the lead-up to the 2023 Manitoba Provincial Election, which in the United States and parts of Canada has targeted teaching ESD issues such as 2SLGBTTQ+ rights, anti-racism, and climate change as unfit content for public schools. Time will tell whether Beasley and Gonzalez's (2021) hopes that the COVID-19 pandemic will have acted as a launchpad to improved conditions for ESD teaching or whether teaching in isolation has set back efforts to shift from the lone *Green Don Quixote* (Jacques, 2012), to the whole-school approach to ESD advocated by Metz et al. (2010).

Many educators will connect the dots between how the COVID-19 pandemic emerged and humans' unhealthy relationship with nature. What is almost certain is that a new cohort of educators that have grown of age during a time of environmental degradation and climate emergency are joining the workforce and doubling down on their determination to put ESD front and centre in their classrooms. The extent to which recognition of "climate justice" as a wider conception of how climate, environment, colonialism, and capitalism intersect (Klein & Stefoff, 2021) and the critical role of Indigenous peoples at the front line of this struggle (Thomas-Muller, 2022) as the lens in which K-12 educators are framing learning experiences for their students is an important yet unexplored area of research.

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APPENDIX A

Semi-structured Interview Questions

1. What was your approach to teaching Education for Sustainable Development (ESD) before the pandemic? What kinds of things did you do? What are some examples of your approach?
2. Was integration of ESD across the curriculum part of your approach? If so, how did you do this? What are some specific examples?
3. Thinking back on your experiences, what were some of the major barriers you faced trying to teach ESD before the pandemic? What were some of the minor ones?
4. What kind of stresses do you face during the pandemic that are specific to your teaching of ESD?
5. How has the pandemic changed your approach to teaching ESD? What kinds of things do you differently? What are some examples?
6. What was your approach to teaching ESD during the pandemic? What kinds of things did you do? What are some examples of your approach during the pandemic?
7. At any time since the pandemic began, did you connect the students' experience with the pandemic to your teaching of ESD? If so, how did you do it? Examples?
8. Thinking back on your experiences, what were some of the major barriers you faced trying to teach ESD during the pandemic? What were some of the minor ones?
9. What has the pandemic taught you as a teacher of ESD? How will the experience of teaching ESD during a pandemic change your emphasis or the way in which ESD is taught in a post-pandemic world? Is there anything that you will do differently? What are some examples?