EDUCATION FOR SUSTAINABLE DEVELOPMENT IN GLOBAL READY SCHOOLS: A COMPARATIVE CASE STUDY

by

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ABSTRACT

KAITLYN OTEY HOLSHOUSER. Education for Sustainable Development in Global Ready Schools: A Comparative Case Study
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This comparative case study explored the implementation of Education for Sustainable Development (ESD) at two of North Carolina's Global Ready elementary schools. The following research questions guided the study: 1) How do educators and affiliates of Global Ready elementary schools perceive global education, specifically Education for Sustainable Development (ESD)?; 2) What sustainability topics are covered most by educators at Global Ready elementary schools in North Carolina?; 3) How is ESD incorporated within global education at Global Ready elementary schools in North Carolina (i.e. examination at the curricular, campus, and community levels)?; and 4) How do Global Ready elementary schools compare in their conceptualization and implementation of global education, specifically ESD? Bronfenbrenner's Ecological Systems Theory (1976) and Elser et al. 's (2011) Sustainable Schools Framework served as useful lenses for examining the affordances and constraints of sustainability education at the curriculum, campus, and community levels. A school-wide survey was disseminated to all certified educators at each school to obtain a broad view of ESD implementation within each case. To explore ESD implementation at a granular level, interviews were conducted with select educators, administrators, community partners, and members of a State Education Agency. Further, artifact collection and field visits allowed for the triangulation of data sources. The constant-comparative method (Glaser & Strauss, 1967) was utilized in the analysis of interviews and artifacts. Findings from both cases suggest that sustainability education was often used as a means for deepening global learning. At the curriculum level,

survey results and interviews with participants indicated frequent integration of social sustainability topics into the curriculum with lesser attention given to topics of economic sustainability. Additionally, while there are many challenges to sustainability education at the curriculum and campus levels, findings suggest that community partnerships may play a role in mitigating some of these constraints. To conclude, the researcher discusses the need to complicate frameworks related to Education for Sustainable Development to attend to the complexity of ESD implementation within and across the curriculum, campus, and community.

Keywords: comparative case study, Education for Sustainable Development, elementary, Global Ready schools, sustainability education

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DEDICATION

This dissertation is dedicated to my husband and favorite beekeeper, Jesse, for empowering me to not just write about sustainability but practice it in our home and community. May we always be good stewards of the bees, trees, and all things in between. This work is also dedicated to my mother, Vickie, for encouraging me to pick up a pen and share my stories from the time I was a little girl. Your belief in me and the stories I have yet to tell has given me the confidence to see this work through to completion.

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LIST OF ABBREVIATIONS

ESD	Education for Sustainable Development
GEDB	Global Educator Digital Badge
PBL	Problem-Based Learning
SD	Sustainable Development
SDG	Sustainable Development Goal
SDGs	Sustainable Development Goals
SEA	State Education Agency

CHAPTER 1: INTRODUCTION

A wise African proverb states that "if you want to go quickly go alone. If you want to go far, go together" (Majange, 2015, para 23). This proverb, along with many others, has ties to topics of sustainability. We are approaching a crossroads as a global community. On the one hand, we can continue down the path we have been traveling. This path is narrow with room for but one traveler. It is a solitary path, alluring to those who crave individual or national success but will no doubt end in our collective demise. It is this very path that has led us to our current global problems. The second path towards sustainability is a wider path with room for more travelers, as the issues of sustainable development will require the effort of all nations and all global citizens (Stafford-Smith, 2017). Coordinating such a large effort of course will take time as traveling with any large group of people has its difficulties, yet through coordinated effort, larger scale change can be achieved if we only dare to venture down a road we have not yet been down.

Issues of sustainability pay no mind to national, state, or local boundaries. The recent pandemic has forced nations down a collective path towards a shared solution; however, the question remains: Will we continue down this collective path together or revert back to our ways of old? For progress to be made towards sustainability, solutions will have to be coordinated efforts across national borders. The United Nations took a significant step towards this coordinated effort with the establishment of the Sustainable Development Goals (SDGs) in 2015. The SDGs provided a framework for understanding, measuring, and acting on global issues (United Nations, 2015). Consisting of 17 goals, the SDGs highlighted issues pertaining to environmental (Goal 13: Climate Change, Goal 14: Life Below Water, and Goal 15: Life on Land), economic (Goal 8: Decent Work and Economic Growth, Goal 9: Industry, Innovation,

and Infrastructure, and Goal 12: Responsible Consumption and Production), and social sustainability (Goal 10: Reduced Inequalities, and Goal 5: Gender Equality). Although each SDG has a clear connection to one of the three forms of sustainability (environment, economic, and social), all the Goals can be traced back to each pillar. For example, at first glance, Goal 12, Responsible Consumption and Production, may seem to align most with issues of economic sustainability, however, this goal emphasizes the connection between economics and the health of the environment. The targets associated with this goal address the need to strike a balance between these two forms of sustainability so that economic gain does not come at the cost of environmental sustainability. Additionally, responsible production involves considerations related to social sustainability by way of ensuring appropriate working conditions for those involved in the production process. Thus, a singular focus on only economic sustainability would afford progress in the name of profit yet would undermine progress in environmental and social sustainability. For this reason, researchers like Stafford-Smith (2017) contended that seeing the interconnectedness of the goals is essential to their fulfillment.

Many argue that education is central to the attainment of all the SDGs (Bokova & Figueres, 2015; Byker et al., 2021), because it provides the path to the knowledge, skills, and attitudes necessary for social, environmental, and economic change. Goal 4 (Quality Education) aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations, 2015, para. 1). The topic of Education for Sustainable Development (ESD) is addressed explicitly in Target 4.7 which delineated the following sub-goal: "By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles" (United Nations, 2015, para. 7).

As 2030 is quickly approaching, it is imperative that progress towards the SDGs is measured so as to inform our next steps. The 2019 Sustainable Development Report provided data for 162 nations and their progress towards attaining the SDGs (Sachs et al., 2019). Currently, the Nordic countries of Denmark, Sweden, and Finland rank highest in their attainment of the SDGs. The United States has an index score of 74.5 out of 100 and ranks 35th out of 162 nations (Sachs et al., 2019). Notably, many of the highly ranked countries have made ESD an integral part of their national curriculums (Räsänen, 2008).

Statement of the Problem

Scholars have claimed that Goal 4, Quality Education, is key to the achievement of the Sustainable Development Goals since through education we can develop a knowledgeable global citizenry about issues of sustainability (Bokova & Figueres, 2015; Byker et al., 2021). Therefore, the curriculum employed in schools plays a vital role in spurring progress towards the SDGs. The problem is that sustainable development will require collective effort, yet schools are all on different paths and there is no consistent policy mandate for ESD. Currently, global education, more specifically ESD, is not a mandated part of the curriculum in the United States, therefore it is often given lesser priority in schools than the tested subjects of reading and math. Although ESD has the potential to provide real-world contexts in which subject knowledge can be situated, many teachers lack a holistic understanding of sustainability topics, hindering their ability to make ESD instruction a reality in their classrooms (Munkebye et al., 2020; Uitto & Saloranta, 2017; Zhukova et al., 2020). Yet even countries who have made efforts to incorporate ESD into their national curricula still document challenges to its implementation (Hurd & Ormsby, 2020; Kuzich et al., 2015). Some of these barriers include, but are not limited to, a lack of teacher

knowledge, subject area constraints, lack of time and resources, and counterintuitive accountability policies (Borg et al., 2012; Kuzich et al., 2015; Tim & Barth, 2020).

As 2030 draws near, it is imperative that a plan is devised to bring ESD to all schools and all students. To do this, however, we must first know where we stand in regard to ESD in the United States. Although there are currently no mandated initiatives for ESD in U.S. schools, Feinstein (2009) warned that ESD may be prevalent and occurring under other names, such as civics education and environmental education. Thus, it is necessary to explore the state of ESD so that recommendations can be made for school improvement and in turn global progress.

Purpose of the Study

The purpose of this exploratory, comparative case study was to investigate the nature of Education for Sustainable Development (ESD) in two of North Carolina's Global Ready elementary schools in order to explore the intersections of ESD and global education. This study investigated ESD implementation at the classroom, campus, and community levels to obtain a holistic understanding of the constraints and affordances of ESD at each level. The findings of this study allow for recommendations to be made related to ESD implementation in elementary schools.

Theoretical and Conceptual Frameworks

Bronfenbrenner's Ecological Framework

According to Bronfenbrenner's (1976) Ecological Systems Theory, "whether and how people learn in educational settings is a function of sets of forces, or systems" (p. 5). Thus, learning in schools is not solely the product of teacher and student interactions, but a myriad of forces acting on both the teacher and student (i.e., standardized testing, school policy and initiatives, etc.). Acknowledging these different forces in educational settings allows researchers

to attend to the complexity that educational research often entails. Bronfenbrenner (1976) delineated systems (micro-system, meso-system, exo-system, and macro-system) which are a “nested arrangement of structures, each contained within the next" (Bronfenbrenner, 1976, p. 5). Using this lens in the analysis of school contexts, particularly the implementation of global education and ESD, allowed the researcher to observe the push and pull factors that influence curricular adoption and implementation at each of these system levels.

Bronfenbrenner (1976) defined the microsystem as “the complex of relations between the developing person and environment in an immediate setting containing that person” (p. 514). Thus, the micro-system as applied to a school setting is conceptualized as an individual classroom where students and teachers interact daily. The micro-system is nested within the meso-system which Bronfenbrenner (1976) defines as “a system of microsystems” (p. 515). Collectively, classrooms form the school itself, thus the individuals within the meso-system extend beyond teachers and their own students to that of their colleagues, other pupils, principals, and other faculty who interact with students at various points in time throughout their education. The exo-system contains forces that “do not themselves contain the developing person but impinge upon or encompass the immediate settings in which that person is found” (Bronfenbrenner, 1976, p. 515). Bronfenbrenner (1976) noted that many of the “major institutions of the society” (p. 515) constitute the exo-system. Educational policy at varying governmental levels has a large influence on both the micro- and meso-systems, even though these forces will not come into physical contact with the learners they greatly affect. Encompassing all these subsystems is the macro-system which “refers to the overarching institutional patterns of the culture or subculture” (Bronfenbrenner, 1976, p. 515).

Much of the research about Education for Sustainable Development is conducted within the micro-system and meso-system. Teachers' values, attitudes, knowledge, and efficacy in implementing ESD is often studied to determine its influence on curricular implementation within their own classrooms, or micro-systems (Ilovan et al., 2019; Moroye, 2017, Zhukova et al., 2020). Additionally, much research also underscores the role that school level involvement plays in implementing ESD (Elser et al., 2011; Mogren et al., 2019; Mogren & Gericke, 2017a; Warner & Elser, 2015). Thus, such a framework is helpful when applied to case study methodology as it allows researchers to obtain a holistic picture of the case under study.

Sustainable Schools Framework

Elser et al. (2011) offered a conceptual framework for school-wide ESD intervention established on the three dimensions of sustainability (environmental, economic, and social). This framework outlined three levels where ESD should be occurring within the school and beyond: (1) the curriculum, (2) the school campus, and (3) the community. The type of learning that occurs at the curricular, campus, and community levels is founded on the three forms of sustainability: environmental sustainability, economic sustainability, and social sustainability. Additionally, the 3 E's (enablement, engagement, and enactment) pervade each scale of influence, demonstrating the importance of acting upon learning.

In this framework, the curriculum level aligns closely to Bronfenbrenner's micro-system. At the curriculum level, the focus is on how and what teachers are teaching to their students. This intervention level is also concerned with teachers' training in ESD pedagogies and content. The campus intervention level aligns closely to the meso-system outlined by Bronfenbrenner (1976). This level focuses primarily on "school and school district operation, including institutional values and philosophy" (Elser et al., 2011, p. 8). Not only are members at the

campus level charged with setting the vision for ESD implementation at the school, but they are also responsible for cultivating school practices that embody the ideas they profess. Thus, it would be expected that care of the school grounds embodies the ideas of sustainability. Lastly, the community level details the involvement of the community in ESD implementation and promotion. This could occur through the cultivation of relationships with caregivers or collaboration "with the business community, interaction with government and non-profits or NGOs, [and] mutual relations with neighboring communities" (Elser et al., 2011, p. 9). Like Bronfenbrenner's Ecological Systems Theory, this framework provides a layered approach to studying ESD implementation within schools that allows for researchers to attend to the complexity of curricular adoption and implementation.

Overview of the Context and Methods

This comparative case study explored the nature of ESD implementation within the global teaching occurring at two of North Carolina's Global Ready elementary schools. The North Carolina Department of Public Instruction (NCDPI) designed the Global Ready designation to recognize individuals, schools, and districts who are committed to global education. To be designated as "Global Ready," a school must engage in "strategic planning," integrate "global themes" into curriculum, and demonstrate their ability to forge "local, national, and international community and business/industry partnerships" (NCDPI, 2021b, p. 5). Schools must submit an application and achieve a performance level of "prepared" or "model" on the Global Ready School Rubric in order to earn this designation (NCDPI, 2021b).

The study took a sequential approach to data collection, as a mixed methods survey was given first in order to aid both in recruitment and the first wave of data collection. From this survey, teacher participants were invited to interview and supply teaching documents for artifact

analysis. At the school level, interviews with principals and document analysis occurred to determine the implementation of ESD practices at what Elser et al. (2011) defined as the campus level or what Bronfenbrenner (1976) considered to be the meso-system. Additionally, interviews with two members of a State Education Agency provided insight into the development and overall aims of the Global Ready Designation. A grounded theory approach (Glaser & Strauss, 1967) was utilized in the analysis of interview transcripts and artifacts collected at the curriculum and campus levels. Both cases were analyzed individually before engaging in cross-case analysis to determine shared themes.

Research Questions

This qualitative, comparative case study addressed the following research questions: (1) How do educators and affiliates of Global Ready elementary schools perceive global education, specifically Education for Sustainable Development (ESD)?; (2) What sustainability topics are covered most by educators at two Global Ready schools in North Carolina?; (3) How is ESD incorporated within global education at two Global Ready schools in North Carolina (i.e. examination at the curricular, campus, and community levels)?; (4) How do two Global Ready elementary schools compare in their conceptualization and implementation of global education, specifically ESD?

Significance Statement

Awards and designations (i.e., Green Ribbon Schools, Green Schools, Eco-Schools) have encouraged ESD implementation around the world. Schools earning these designations have been key sites for case study research on ESD implementation (Mogren & Gericke, 2017a, 2017b). In these studies, many researchers have observed the intersections of ESD and global education (McNaughton, 2012; Mogren & Gericke, 2017a; Moore et al., 2019). For example,

during an integrated ESD project completed by teachers in Sweden, Norden (2018) found that "integrating a global dimension and connecting it to concrete instances of local practices also made it possible to raise awareness about complex systemic and structural interrelationships at a planetary level" (p. 667). Through this experience, teachers and students were able to acknowledge how their local actions contribute to global problems (Norden, 2018). Further affirming the connection between global education and ESD agendas, Mogren and Gericke (2017a) found that principals in highly ranked ESD schools within Finland identified "the need for school organisations to interact and cooperate with local and global society" (p. 984).

Despite research that supports their conceptual overlap, some research pertaining to ESD fails to extend beyond local sustainability issues (Elser et al., 2011; Warner & Elser, 2015). Additionally, few studies have explored these intersections outright. Due to the broad nature of ESD, it has conceptual ties to a variety of educational topics meaning that "there are strong ESD-relevant projects associated with civic education, place-based education, and education in the traditional academic disciplines" (Feinstein, 2009, p. 2). Therefore, it is important that ESD research is not limited to schools with sustainability designations. Given the conceptual overlap between ESD and global education, this research explored the intersection of ESD and global education at two elementary schools in North Carolina which have been designated as Global Ready schools by North Carolina's Department of Public Instruction.

Organization of the Study

This dissertation is organized into six chapters. Chapter 1 provided a brief introduction to Education for Sustainable Development (ESD), highlighting the role that education must play in the attainment of the Sustainable Development Goals (SDGs). Chapter 2 provides an overview of the literature pertaining to ESD through the lens of Bronfenbrenner's Ecological Framework,

which allows for the synthesis of ESD literature at the classroom level (micro-system), school level (meso-system), and at the policy level (exo-system). Chapter 3 provides a description of the comparative case study methodology employed at two of North Carolina's Global Ready elementary schools. To address RQ 1, 2, and 3, individual case reports are reported in Chapters 4 and 5. Both chapters follow a similar organization, however, Chapters 4 reports case study findings from Happy Meadows and Chapter 5 reports the case study findings emerging from Rolling Hills. The dissertation will conclude with a cross-case comparison of ESD implementation at Happy Meadows and Rolling Hills in Chapter 6. This cross-case comparison will be followed by an interpretation of the study's findings through the lenses of Elser et al.'s Sustainable Schools Framework and Bronfenbrenner's (1976) Ecological Systems Theory, ending with a discussion on the need to complicate frameworks related to ESD implementation in schools.

Definition of Terms

Economic Sustainability

Highly linked to environmental sustainability, economic sustainability cannot be understood without considering the economy's impact on the environment. In determining the economic sustainability of a particular region, one must look at current trends in production, consumption, and distribution of products through the lens of environmental and social sustainability (Dernbach, 1993; Mensah, 2019; Zhai & Chang, 2019). Unfortunately, at times, undue emphasis has been placed on profit margins, neglecting both environmental (replenishment of natural resources) and social sustainability (i.e., labor, inequitable working conditions, etc.). Thus, economic sustainability "requires that decisions are made in the most equitable and fiscally sound way possible, while considering the other aspects of sustainability" (Mensah, 2019, p. 9). Goal 8 (Decent Work and Economic Growth), Goal 9 (Industry

Innovation, and Infrastructure), and Goal 12 (Responsible Consumption and Production) are SDGs directly related to economic sustainability.

Education for Sustainable Development (ESD)

Education for Sustainable Development (ESD) is a facet of global education that attends specifically to issues of environmental, economic, and social sustainability. ESD prioritizes and cultivates students' capacity for problem solving to equip students with the skills necessary to make change in both their local and global communities (Kadji-Beltran et al., 2013; Mogren & Gericke, 2017b; Moore et al., 2019; Sund, 2015). With this goal in mind, ESD prioritizes learner-centered, transformative, and interdisciplinary pedagogical approaches (Kadji-Beltran et al., 2013; Mogren & Gericke, 2017b; Moore et al., 2019; Sund, 2015).

Environmental Sustainability

One of the three pillars of sustainability, and likely the most acknowledged form of sustainability, is environmental sustainability, which pertains to our ability to use Earth's resources responsibly, in a way that does not deplete its reservoir of natural resources faster than they can be naturally replenished (Mensah, 2019). Central to our understanding of environmental sustainability is the recognition that "earth systems have limits or boundaries within which equilibrium is maintained" (Mensah, 2019, p. 10). Goal 13 (Climate Change), Goal 14 (Life Below Water), and Goal 15 (Life on Land) of the Sustainable Development Goals relate most directly to environmental sustainability. However, other goals, such as Goal 6 (Clean Water and Sanitation), Goal 11 (Sustainable Cities and Communities), and Goal 12 (Responsible Consumption and Production) show the interconnection between environmental, economic, and social sustainability.

Global Education

Cabezudo et al. (2010) defined global education as "an umbrella term for pedagogical concepts related to the realities of today's world" (p. 20). Therefore, Global Education is the broader term under which Education for Sustainable Development falls.

Global Educator Digital Badge (GEDB)

The GEDB was proposed by North Carolina's Task Force on Global Education in 2011 and approved in 2014 (North Carolina Department of Public Instruction [NCDPI], 2021a). The intended purpose of this badge was to "allow educators to demonstrate their global competence through the ability to develop their students' capacity and disposition to understand and act on issues of global significance through disciplinary and interdisciplinary study" (NCDPI, 2021a, p. 1). To earn their Digital Badge, teachers must design a professional development plan centered around global education, participate in 100 hours of professional development aligned with their plan, and complete a capstone project.

Social Sustainability

Social sustainability is directly related to the well-being of people. Thus, social sustainability concerns itself with issues of equity, equality, and social justice (Mensah, 2019). Most notably, Goal 10 (Reduced Inequalities) and Goal 5 (Gender Equality) are most related to social sustainability; however, Goal 1 (No Poverty), Goal 2 (Zero Hunger), Goal 3 (Good Health and Well Being), and Goal 4 (Quality Education) also have close ties to this pillar of sustainability.

Sustainable Development (SD)

To counteract the negative effects of globalization, it is essential that equilibrium is pursued among three key forms of sustainability: environmental, social, and economic

sustainability (Cabezudo et al., 2010, Mensah, 2019). The Brundtland Report (as cited in Hoffman & Siege, 2018) defined sustainable development as “a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations" (p. 43). From this definition it is clear that sustainable development goes beyond environmental sustainability, as an over-emphasis on one form of sustainability may come at the detriment of another form of sustainability (Stafford-Smith, 2017). Therefore, for SD to become a reality, the interconnectedness of environmental, economic, and social sustainability must be realized (Stafford-Smith, 2017).

Sustainable Development Goals (SDGs)

The Sustainable Development Goals, or SDGs, is a framework comprising 17 goals related to environmental, economic, and social sustainability (United Nations, 2015). This framework, established by the United Nations in 2015, provides all global citizens with a shared vision for the betterment of the planet. Each goal consists of several smaller targets and indicators, which undergo measurement each year to chart progress. The United Nations (2015) set a deadline of 2030 for the achievement of the Goals.

Assumptions

1. The extent of ESD implementation at the teacher/classroom level is assumed to be influenced by teachers’ own content knowledge, personal beliefs as they relate to sustainability, and the level of support provided at the administrative level.
2. The extent of ESD implementation at the school level is believed to be influenced by administrator’s knowledge of sustainable development, personal beliefs as they relate to

issues of sustainability, and level of support or infringement of educational policy at the district/state/national level.

3. It is assumed that all teachers participating in the survey will answer all questions honestly, to the best of their knowledge, providing an accurate depiction of their current knowledge and enactment of ESD in their own classrooms.
4. It is assumed that all teachers and administrators will demonstrate honesty and transparency during interviews.
5. It is assumed that teachers and administrators will provide a comprehensive set of documents to the researcher that accurately reflect their global education initiatives at the school level.

Delimitations and Limitations

Delimitations

The following delimitations served as boundaries for this study:

1. To be selected for participation in this study, schools must be recognized and distinguished as a Global Ready school by the North Carolina Department of Public Instruction.
2. Despite a school's designation as a Global Ready school, teachers may be at different stages in obtaining their Global Ready Educator's Badge.
3. The data collected for this study was limited to two elementary schools.
4. This study took place between the months of August and December of the 2021 academic school year.

Limitations

1. This study did not explore ESD at the middle school, high school, or college level.

2. This study only explored ESD implementation at Global Ready schools. Schools with global designations or distinctions outside of the Global Ready designation were not included in this study.
3. Survey data relied on teachers' self-reporting of their ESD implementation.
4. Given the small sample size and qualitative methods employed, findings from this study are not generalizable.

CHAPTER 2: LITERATURE REVIEW

Introduction to ESD and Global Education

The Brundtland Report defined sustainable development (SD) as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UN World Commission on Environment and Development, 1987, p. 41). Thus, sustainable development becomes a constant pursuit of harmony among three key forms of sustainability: 1) environmental, 2) social, and 3) economic (Cabezudo et al., 2010; Mensah, 2019). While equilibrium between these three forms of sustainability will likely result in progress towards a sustainable future, disequilibrium may further compound global issues (Stafford-Smith, 2017). Therefore, for sustainable development to become a reality, the interconnectedness of environmental, economic, and social sustainability must be realized (Stafford-Smith, 2017). Thus, Education for Sustainable Development (ESD) plays a key role in developing the knowledge base of a global citizenry that can work towards a more sustainable future.

Education for Sustainable Development

Education for Sustainable Development (ESD), also referred to as Education for Sustainability (EfS), is a newer field of research emerging from the field of environmental education (Feinstein, 2009; Kadji-Beltran et al., 2013; Warner & Elser, 2015). Based on the Brundtland Report's definition of sustainable development, Hoffman and Siege (2018) defined ESD as "an instrument to support the sustainable development process" (Hoffman & Siege, 2018, p. 5). Given the complexity of present world problems, ESD pedagogy is often conceptualized as learner-centered and transformative in nature to develop students' problem-solving abilities so they can tackle present and future global challenges (Kadji-Beltran et al.,

2013; Mogren & Gericke, 2017; Moore et al., 2019; Sund, 2015). It is universally acknowledged that education is fundamental to sustainable development (Bokova & Figueres, 2015). Therefore, it is essential that ESD implementation be studied to ensure its presence in schools around the world. Its presence in schools will equip global citizens with the skills and knowledge required to secure a sustainable world for both themselves and future generations.

ESD and Global Education

Cabezudo et al. (2010) defined global education as "an umbrella term for pedagogical concepts related to the realities of today's world" (p. 20). ESD is one form of education encompassed under the broad term "global education" (Cabezudo et al., 2010). Therefore, it is not surprising that many intersections emerge between ESD and global education efforts. The use of transformative practices, formal and informal learning contexts, and the focus on competency development are among some of the commonalities between ESD and global education (Cabezudo et al., 2010; Kadji-Beltran et al., 2013; Mogren & Gericke, 2017; Moore et al., 2019; Sund, 2015). By studying ESD implementation at schools designated as Global Ready, the intersections of ESD and global education were explored, ultimately furthering understanding of how global and sustainability initiatives fit together.

Historical Overview of the Global Ready Designation

In 2011, North Carolina's State Board of Education established the Task Force on Global Education, comprising a variety of individuals both internal and external to the Board. This Task Force was given the responsibility of developing recommendations that would enable students in the state of North Carolina to better their "understanding and appreciation of other countries, languages, and cultures" in order to equip students with "the strong base of skills, knowledge, and tools they need to fully participate and prosper in the 21st century global economy" (Fiske et

al., 2013, p. 3). In 2013, the taskforce released their final report titled, *Preparing Students for the World: Final Report of the State Board of Education's Task Force on Global Education* (Fiske et al., 2013). Presented within the report were six key findings: 1) "We aren't preparing students for a global tomorrow; North Carolina is global *today*", 2) "Pilot programs won't cut it. Preparing globally competent graduates requires a comprehensive approach," 3) "To prepare our students for the world, we need to prepare their teachers," 4) "North Carolina was once a leader in language learning. It's time to return to the pole position," 5) "Schools need peers and partners to move this agenda," and 6) "If it's not sustainable, it's not a strategy" (Fiske et al., 2013, p. 5).

Based on these findings, five key recommendations were made in the report. One of these recommendations, *"*Commitment 4: *District Networking and Recognition,"* speaks directly to the establishment of the Global Ready Designations (Fiske et al., 2013, p. 6). The Global Ready designation can be earned at three different levels. At the individual level, educators can earn their Global Educator Digital Badge (GEDB) by designing a professional development plan centered around global education, participating in 100 hours of professional development (PD) aligned with their plan, and completing a capstone project. The intended purpose of this badge is to "allow educators to demonstrate their global competence through the ability to develop their students' capacity and disposition to understand and act on issues of global significance through disciplinary and interdisciplinary study" (NCDPI, 2021a, p. 1).

The Global Ready designation can also be awarded at the school and district levels. To be recognized as Global Ready, schools must develop a strategic plan for global education and appoint a Global Education committee. Additionally, schools must score as "prepared" or "model" on each of the ten criteria outlined in the Global Ready School Implementation Rubric (NCDPI Office of Global Education, 2017, p. 4). These criteria include: 1) the development of a

strategic plan for global education, 2) the appointment of a global education committee, 3) documentation of professional development provided to teachers, 4) incorporation of global themes and problem-based learning, 5) provision of experiential learning opportunities that are global in nature, 6) aligning global competence with college and career pathways, 7) incorporation of world languages, 8) authentic assessments of global learning, 9) communication of their strategic plan, and 10) development of community partnerships (NCDPI Office of Global Education, 2017, p. 4).

Many of the attributes within the rubric align with the ESD literature, such as attribute four which states that Global Ready schools must incorporate "global themes and problem-based learning throughout the curriculum" (NCDPI Office of Global Education, 2017, p. 4). Given the uncertainty surrounding many of our current sustainability challenges, developing students' skills and capacity to engage in creative problem solving is another way in which ESD overlaps with the requirements set forth by the Global Ready designation. Additionally, attributes nine and ten state that "a Global-Ready School initiates and sustains, local, national, and international community and business/industry partnerships" (NCDPI Office of Global Education, 2017, p. 4). The importance of partnerships has been highlighted by various scholars in the ESD literature as a means for supporting teachers' content knowledge about sustainability practices and providing students with learning opportunities outside of the classroom (Moore et al., 2019). Given the conceptual overlap between ESD and global education, Global Ready Schools are a prime setting for studying the intersection of sustainability education and global education.

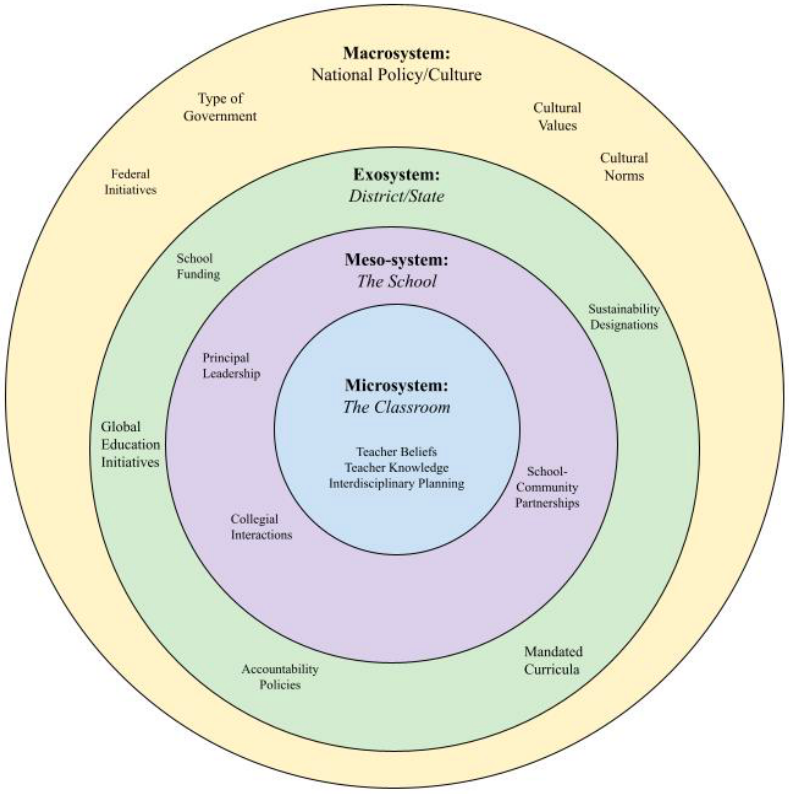
Levels of ESD Implementation

The process of curricular implementation is complex and affected by many stakeholders (teachers, school administrations, district and state policy, etc.). Thus, Bronfenbrenner's

Ecological Systems Theory (1976) is helpful in attending to the complexity of curricular implementation and the myriad push and pull factors at various levels, which influence the learning that takes place in the classroom. According to Bronfenbrenner (1976), “whether and how people learn in educational settings is a function of sets of forces, or systems" (p. 5). Bronfenbrenner (1976) delineated systems (i.e., micro-system, meso-system, exo-system, and macro-system) which are a “nested arrangement of structures, each contained within the next” (Bronfenbrenner, 1976, p. 5). In the literature review that follows, research on ESD implementation will be synthesized within and across the micro-, meso-, and exo-systems since all these systems play a role in the implementation of Education for Sustainable Development (Figure 1).

Figure 1

Bronfenbrenner’s Ecological Systems Theory Applied to ESD



The Micro-System: Teaching and Learning

Bronfenbrenner (1976) defined the micro-system as "an immediate setting containing the learner" (p. 5). To study ESD implementation, the micro-system refers to teacher implementation of ESD in the classroom. This system exerts the most direct influence on students and what they learn. Empirical research on ESD implementation at the micro-level focuses on teachers' knowledge of sustainability issues, beliefs, and engagement in interdisciplinary planning (see Figure 1). Additionally, frameworks have emerged that help to conceptualize the pedagogies related to ESD implementation at the micro-level.

Teacher Beliefs

Researchers have taken to studying teachers' beliefs and attitudes about sustainability issues and how these attitudes influence behavior, particularly in the form of ESD implementation in their own classrooms (Ilovan et al., 2019, Zhukova et al., 2020). Despite the fact that ESD is largely neglected in the formal curriculum in the United States, researchers have taken to studying how teachers' personal beliefs regarding sustainability influences the curriculum they teach, forming what Moroye (2017) referred to as the "complementary curriculum," which is defined as "the embedded and often unconscious expression of a teacher's beliefs" (Moroye, 2017, p. 351). In a study of three educators, two English and one social studies teacher, Moroye (2017) discovered evidence of small ways that teachers' own values and beliefs about issues of sustainability entered the curriculum. Beliefs often appeared in a "teacher's use of examples, personal stories, vocabulary, and pedagogical practices that relate to or emerge from ecological ideas" (Moroye, 2017, p. 351). It is important to note, however, that the teachers involved in Moroye's (2017) study had personally established passions for sustainability, therefore one cannot rely on the fact that ESD will find its way into the curriculum purely by

means of the complementary curriculum. In a study of novice teachers, Zhukova et al. (2020) found that many teachers viewed sustainability as important, but many noted that they were in need of more training. This comes as no surprise due to the absence of ESD in the formal curriculum.

Timm and Barth (2020) found two types of belief systems from which teachers operate regarding their ability to influence change in regard to the instruction they provided in sustainable development. Teachers adopting a micro-level change belief system implement ESD in their classroom instruction, yet this is where they believe their influence stops. On the other hand, teachers operating from the macro-level change belief system imagined their influence as extending beyond their classroom walls to the school level. Tim and Barth (2020) contended that these belief systems may undergo change as teachers' self-efficacy in ESD grows.

Many teachers also differ in their beliefs about planning for and implementing ESD. Norden (2018) found that teachers participating in a school-wide integrated project typically conceptualized ESD project implementation in one of two ways: 1) As an "additive/ subject-based approach," or 2) as a "phenomenon-based approach" (p. 668). Teachers operating from the additive approach tended to gravitate towards more traditional teaching methods and used their subject area as a starting point for planning, whereas those who adopted the phenomenon-based approach incorporated more "holistic and transformational strategies" (p. 668). While the latter approach may be the ultimate goal of ESD instruction as it attends to the complexity of real-world problems, the former approach demonstrates the barrier that subject areas may pose for ESD implementation as no sustainability problem fits neatly into one subject area.

Teacher Knowledge

Various studies have explored teachers' knowledge of sustainable development (SD) through interviews, surveys, and focus groups. In a phenomenographic study of beginning teachers in Latvia, Zhukova et al. (2020) found novice teachers held superficial knowledge of sustainability and focused only on the environmental form of SD (Zhukova et al., 2020). This finding is supported by other studies which have found teachers' overemphasis on the environmental dimension (Borg et al., 2014; Redmen et al., 2018; Wolff, 2017). Conversely, Uitto and Saloranta (2017) found that teachers in their survey study emphasized the social dimension over other forms of sustainability. Yet, research shows that even when teachers focus primarily on environmental learning in outdoor spaces, many still miss opportunities to incorporate sustainable development (Aksland & Rundgren, 2020). If teachers' knowledge is limited to one dimension of sustainability, it seems unlikely that teachers will be able to holistically implement ESD, unless collaboration is encouraged, and personalized professional development is provided that helps fill teachers' gaps in content knowledge.

Holistic Instruction

Holistic instruction refers to teachers' ability to situate learning in real-world problems, drawing on connections between all three forms of sustainability (environmental, economic, and social) (Karatzoglou, 2012). Thus, research on ESD at the micro-level, or the classroom level, often explores teachers' ability to take an interdisciplinary approach to ESD instruction to attend to the complexity of real-world problems and the various dimensions of sustainable development. In fact, research suggests that experienced ESD teachers "approach expectations and misgivings of ESD by tackling complexity, and do not aim to simplify or reduce it" (Sund, 2015, p. 31). A holistic understanding and interdisciplinary approach to sustainable development

is essential (Mogren & Gericke, 2017a), yet research shows that holistic understanding is rarely actualized (Borg et al., 2014; Munkabye, 2020; Uitto & Saloranta, 2017).

To study ESD implementation, Munkebye et al. (2020) employed a multi-site case study, in which fourteen curricular units served as the unit of study. Social and environmental topics were most prevalent in the units, with little inclusion of economic topics. In synthesizing these findings with research on teacher knowledge (Borg et al., 2014; Uitto & Saloranta, 2017), it becomes apparent that a lack of holistic understanding of the various dimensions of ESD may contribute to reductionist curricular implementation. Hurd and Ormsby's (2020) multi-site case study of ESD implementation also supports this claim, as the researchers found teachers experienced difficulty integrating ESD into subject areas at the primary level.

Subject Area Influence

Subject areas may hinder the holistic implementation of ESD (Borg et al., 2014; Uitto & Saloranta, 2017). In a popular survey study, Borg et al., (2014) found Swedish upper secondary school teachers' ability to incorporate the economic dimension was largely influenced by subject area taught. Similarly, in a survey study conducted by Uitto and Saloranta (2017), science teachers (i.e., biology and geography) more frequently addressed environmental sustainability, whereas "economic aspects were considered most often by home economics, history, and biology teachers" (p. 6). Further, they contended that "every subject teacher group had its specific strengths and limitations" (Uitto & Saloranta, 2017, p. 17). This finding is further supported by Sund and Gericke (2020) who explored the various differences in content, methods, and motives of science, social science, and language teachers, identifying many ways in which these differences could be conceptualized as strengths to be leveraged during collaborative planning sessions.

Not only has research documented subject area influence on sustainable development content coverage, but research also suggests its influence on pedagogy (Borg et al., 2014; Sund, & Gericke, 2020). Borg et al. (2014) found that while science teachers gravitated to more didactic pedagogical approaches when implementing ESD, teachers of social sciences employed more student-centered, transformative practices. Sund and Gericke (2020) found similar tendencies among subject area teachers. Similar research should be replicated in primary settings to see if these trends persist.

ESD Pedagogies

Two conceptual frameworks are helpful in understanding how ESD pedagogies are employed by teachers at the micro-system level: 1) Vare & Scott's (2007) ESD 1 & ESD II, and 2) Eilam and Trop's (2010) four layers of ESD pedagogy. Referenced in studies of teacher implementation of ESD (McNaughton, 2012; Mogren et al., 2019; Mogren & Gericke, 2017a; Mogren & Gericke, 2017b; Sund, 2015; Wolff, 2017), Vare and Scott (2007) build upon Scott and Gough's (2003) sustainable development types. In their framework, Vare and Scott (2007) propose two types of ESD instruction: ESD I and ESD II. The first instruction type is characterized by learning from outside experts about sustainable development. However, this type of instruction does not suffice on its own as many of the world's problems do not yet have solutions. Therefore, instruction that equips students to develop their problem-solving capabilities is necessary. ESD II intends to develop learners' critical thinking skills through inquiry-based pedagogies. Vare and Scott (2007) maintained that ESD I and ESD II pedagogies are both necessary, interdependent, and can be implemented simultaneously in the classroom.

Eilam and Trop (2010) proposed a framework that includes four layers of ESD instruction that scholars have referenced in studies about multi-disciplinary ESD integration

(Munkebye, 2020; Sund, 2020). The four layers include: 1) Traditional/Non-Natural learning, 2) Multidisciplinary Learning, 3) Multidimensional Learning, and 4) Emotional Learning. Building on one another, the first layers of the framework involve acquiring information, whereas the top layers involve using information to inform values and affect change.

Because solutions to sustainability issues are far from simple, one pedagogical approach will not be sufficient for ESD implementation. As can be seen from Vare and Scott's framework, students cannot be expected to use inquiry-based practices (ESD II) if they do not at least have some foundational knowledge about sustainable development (ESD I). Additionally, in Eilam and Trop's (2010) framework, instructing students in traditional, multidisciplinary, and multi-dimensional ways, although helpful in building students' content knowledge, will not necessarily influence change if emotional learning is neglected, as issues of sustainable development are not value neutral. Thus, one would expect that ESD implementation within the classroom, or micro-system, will involve a variety of pedagogical approaches in order to be effective.

The Meso-System: School Level

Bronfenbrenner (1976) defined the meso-system as "the system of micro-systems" (p. 6) and in the context of ESD implementation the meso-system is conceptualized as the school setting in which school-wide initiatives for ESD are being employed, and curriculum is implemented in classrooms (micro-systems) throughout the school (see Figure 1). Case studies at schools earning sustainability designations are prominent in ESD research at the school level. Interviews among teachers and principals (Kadji-Beltran et al., 2013; Mogren & Gericke, 2017; Norden, 2018; Warner & Elser, 2015), as well as document analysis (Warner & Elser, 2015) were common methods employed. Additionally, rigorous methods were found in some studies

which quantified qualitative findings using coding frameworks, aiding in comparisons across schools or cases (Mogren & Gericke, 2017a, 2017b; Warner & Elser, 2015).

School-Wide Frameworks

Elser et al. (2011) offered a conceptual framework for school-wide ESD intervention founded on the three dimensions of sustainability (environmental, economic, and social). This framework delineated three scales of influence in which ESD should occur: 1) the curriculum, 2) the school campus, and 3) the community. Throughout each of these levels, instruction should be designed in a way that enables students to engage and enact their new learning to influence real change. This framework was later used in Warner and Elser's (2015) study of ESD implementation across Green Ribbon Schools in the United States, as well as Hurd and Ormsby's (2020) multi-site case study of ESD implementation at four U.S. primary schools.

Additionally, Moore et al. (2019) proposed a partnership model for sustainable schools. Similar to Elser et al.'s (2011) model, this framework also emphasized the role of the community, stating that "communities of practice must extend their boundaries, to create wider community partnerships, in order to harness the knowledge and skills required for such an endeavor" (Moore et al., 2019, p. 1746). While Elser et al. (2011)'s framework provided a broader view of ESD implementation, Moore et al.'s (2019) framework provided more nuance to the community scale present in Elser et al.'s (2011) framework. The partnership model highlights the connection between schools, industries, and universities and theorizes about the benefits these partnerships could incur for all stakeholders. This framework highlights community involvement which is central as teachers need support in their content knowledge regarding sustainability (Borg et al., 2014; Munkabye, 2020; Uitto & Saloranta, 2017).

School Level Implementation

In a study of top-rated Swedish secondary schools for ESD implementation, Mogren and Gericke (2017a) found criteria associated with successful school implementation of ESD. A cluster analysis grouped the criteria into four categories: 1) collaborative interaction and school development, 2) student-centered education, 3) cooperation with local society, and 4) proactive leadership and continuity. These findings suggested the importance of community partnerships given the "collaborative interaction and school development" and "cooperation with local society" clusters emerging from their research (Mogren & Gericke, 2017a, p. 972). Yet, research shows that many principals have not placed emphasis on developing their community partnerships to their fullest extent (Kadji-Beltran et al., 2013).

To increase community involvement, Hurd and Ormsby (2020) suggested the development of "monthly or annual themes to be developed to raise awareness about sustainability education across the community" (p. 13). Community and industry involvement may have far-reaching influences on the micro-system, as industry experts are brought in to discuss highly specific topics, which might be outside of teachers' training (Moore et al., 2019). This type of teacher learning may serve as non-traditional professional development for teachers when district or state professional development is insufficient (Hill & Dyment, 2016).

Student-centered education was also a theme emerging among the criteria gleaned from principals at ESD acclaimed schools. Although both transformative and transmissive pedagogical practices were highlighted in principal interviews, slightly more emphasis was placed on transformative practices (Mogren & Gericke, 2017b). Such a finding in this school-wide case study demonstrates the dynamic exchange between the micro-level (teachers) and meso-system (school-wide implementation), appealing to the "nested arrangement" of

Bronfenbrenner's (1976) ecological model (p. 5).

The Exo-System: Educational Policy

Government policies, at all levels, are one conception of the exo-system (Bronfenbrenner, 1976), as these bodies often regulate what goes on at the meso- and micro- levels even though they have little direct interaction with students (see Figure 1). ESD research at the district, state, or national level often employs case study methodology given the varying contexts in which ESD implementation has occurred worldwide. Thus, comparing ESD implementation across countries poses a challenge due to varying forms of government. Additionally, the size of the United States and states' rights to education make it difficult to compare ESD implementation across states.

Various countries have prioritized sustainable development in their national curriculums by creating "overarching values or dimensions" which guide instruction (Hill & Dyment, 2016, p. 228). This is true for the Australian curriculum, which in 2011 defined three cross-curriculum priorities (CCP) in their curriculum, one of which was "sustainability" (Hill & Dyment, 2016; Kuzich et al., 2015, p. 181). Finland, Sweden, New Zealand, and the United Kingdom are among other nations who make specific references to ESD in their national curriculums (Hill & Dyment, 2016; Maata et al., 2020; Räsänen, 2008). Despite good intentions, research has shown that references to ESD in curricular documents are often ineffective if not coupled with "structural change[s]" (Hill & Dyment, 2015, p. 239; Kuzich et al., 2015).

A notable state-wide case study conducted by Hill and Dyment (2016) explored schools' implementation and perceptions of the CCPs outlined in Australia's national curriculum. Researchers found that references to sustainability in the curriculum may not suffice, as principals revealed lack of PD in the area, as well as lack of assessment or accountability policies

which often causes ESD "to be seen as an optional extra or an add-on" (p. 237). Kuzich et al.'s (2015) case study of an Australian primary school provides an even more granular look at how national policy can affect even the most well-equipped school for ESD implementation. Researchers found limited resources, accountability policies, and a lack of professional development hindered ESD implementation.

Given state autonomy in educational decision making within the United States, case studies related to ESD, or more broadly, global education, are more likely to occur at state and district levels. Tichnor-Wagner (2019) examined district initiatives to obtain the district-wide "global ready" designation in two North Carolina school districts. Findings suggested that implementation strategies varied from district to district, one taking a top-down approach and another taking a bottom-up approach. Given the non-mandated nature of the Global Ready initiatives, the extent to which global education, more specifically ESD, occurs in North Carolina may be haphazard at best.

Barriers and Solutions

Micro-System

Teacher knowledge is a significant barrier to holistic ESD implementation in the microsystem, or classroom (Hill & Dyment, 2016; Zhukova et al., 2020). Holistic instruction refers to teachers' ability to attend to the complexity of sustainability problems, which is often evident in their knowledge of environmental, economic, and social sustainability issues and their ability to incorporate and plan for connections among these forms of sustainability in their subject area. Given teachers' varying knowledge (Uitto & Saloranta, 2017; Zhukova et al., 2020), tailored professional development based on teachers' subject areas and/or identified needs is paramount to ensure that a holistic approach to ESD instruction is taken (Borg et al., 2012).

Additionally, teachers view collaboration with their colleagues and instructional coaches as valuable resources that can support curricular implementation. Sund & Gericke (2020) emphasized the importance of collaborative planning as teachers within the same school bring different sustainability knowledge to their team. Additionally, in Hurd and Ormsby's (2020) multi-site case study, primary teachers appreciated having ESD lessons modeled for them by their instructional coaches and other expert teachers.

Meso-System

For ESD implementation to be actualized at both the classroom and school levels, many assert that accountability policies will have to be reformed (Feinstein, 2009; Moore et al., 2019). Thus, many contend that barriers in the meso-system are often the product of policy in the exo-system. Given the transformative nature that ESD requires, such competencies and skills are not easily measured by standardized tests. Many teachers and schools may not readily adopt such practices if they know they will in no way shape accountability outcomes (Hill & Dyment, 2016; Kuzich et al., 2015). Additionally, state and local control over education in the United States has resulted in disparities in school funding (Darling-Hammond, 2010), posing barriers to ESD implementation within the micro- and meso- systems. Even if schools and teachers secure funding for ESD projects through one-time grants and/or participating in federal initiatives, the upkeep of such projects (i.e., greener school grounds), is still of concern (Kuzich et al., 2015).

Exo-system

Nationally, the United States has made little progress towards ESD as compared to other nations (Feinstein, 2009). Given states' rights to education, whole-scale national progress towards ESD poses more challenges for the United States, as opposed to the smaller, more centralized nations of Finland and Sweden (Feinstein, 2009). Additionally, the United States may

continue to struggle to gain momentum towards ESD implementation when it is often referred to by different names in the literature (Feinstein, 2009).

Conclusion

To see progress made towards the SDGs, Education for Sustainable Development must become a priority for stakeholders at all levels (teacher, school, and district/state policy). Barriers exist to ESD implementation at all levels, yet solutions to these barriers may require multi-level changes. Research in the micro-system suggests that teachers' lack of sustainability content knowledge (CK) hinders holistic ESD implementation. Research points to professional development and community partnerships as a means for growing teachers' content knowledge and beliefs about their ability to implement ESD (Murphy et al., 2020). Further research should explore correlations between teachers' sustainability knowledge (micro-system) and the extent of community partnerships afforded by their schools (meso-system), so that efforts can be made to promote a "systemic approach" to ESD implementation (Darling-Hammond, 2017, p. 234).

Currently there exists a need to expand current ESD frameworks to include a global dimension. Adding this global dimension will allow researchers to explore ESD outside of schools earning sustainability designations (i.e., Green Ribbon Schools, Eco-Schools, etc.). Although some states in the United States have not made explicit references to ESD, references have been made to global education (Tichnor-Wagner, 2019). This is currently the case for the Global Ready Schools Initiative in North Carolina. Due to the conceptual overlap between ESD and global education, exploratory research of ESD implementation needs to occur at schools distinguished for their global achievement. Conducting case studies at schools that have earned global designations may be a necessary next step, so as to bridge the gap of ESD "nomenclature" hindering ESD progress (Feinstein, 2009, p. 2).

CHAPTER 3: METHODS

This qualitative, multi-site case study research addressed the following research questions: 1) How do educators and affiliates of Global Ready elementary schools perceive global education, specifically Education for Sustainable Development (ESD)?, 2) What sustainability topics are covered most by educators at two Global Ready schools in North Carolina?, (3) How is ESD incorporated within global education at two Global Ready schools in North Carolina (i.e. examination at the curricular, campus, and community levels)?, (4) How do two Global Ready elementary schools compare in their conceptualization and implementation of global education, specifically ESD?

The purpose of case study research was to delve deeply into answering questions that demand complexity, namely these are the "why" and "how" questions (Yin, 1994/2008). Whereas "what" questions are typically better answered by quantitative methods with large sample sizes, the complexity that "how" and "why questions demand require more depth to provide a rich and holistic description of the case under study (Yin, 1994/2008). To be successful in developing this rich description, participants are strategically recruited to allow the researcher to delve more deeply into participants' experiences of the phenomena under study. In this way, case study research takes a deeper, yet narrower approach than quantitative methods.

Case study methodology has become routine in studies of ESD implementation around the world (Mogren & Gericke, 2017; Munkebye et al., 2020; Warner & Elser, 2015). Given the novelty of ESD practices, schools that have won sustainability awards or designations often serve as cases or units of study. This research expands the ESD literature by exploring ESD implementation at two Global Ready elementary schools in North Carolina through a multi-site, comparative case study.

Multiple Case Study Context and Participants

Yin (1994/2008) provided a list of steps typically involved in case study research. These include: 1) identifying the unit to be studied, 2) deciding on the appropriateness of single or multiple cases, 3) delineating selection criteria for the given case, and 4) determining appropriate data collection methods. A description of each of these steps will follow and documentation of each step can be found in Table 1.

Table 1

Yin's (1994, 2008) Steps in Case Study Research Design

Case Study Design Issue	Research Design
1) Identifying the unit to be studied	1) The unit under study was implementation of Education for Sustainable Development at Global Ready elementary schools
2) Decide on the appropriateness of single or multiple cases	2) This dissertation employed a multi-site case study design to study the implementation of ESD at two, Global Ready elementary schools
3) Delineate selection criteria for the given case	3) School Selection a) Must be designated as a Global Ready School by the North Carolina Department of Public Instruction b) Must be an elementary school c) Must be located in reasonable proximity of the researcher to allow for on-site visits
4) Determine appropriate data collection methods	4) The data collection employed in this study included: a) survey b) interviews c) field notes d) artifact analysis

Step 1: Identification of the Unit

For the purpose of this research, two Global Ready elementary schools served as the unit of study and bounded case. Stake (2006) noted that "the case is singular, but it has subsections," therefore effort should be taken to obtain the perspectives of individuals within different sectors

of the case (p. 12). Within these cases are various stakeholders and physical spaces which may contribute to ESD implementation. By designating the school as the unit to be studied, the researcher was able to see ESD implementation at varying levels of Elser et al. 's (2011) Sustainable Schools Framework (curriculum, campus, and community) and Bronfenbrenner's Ecological Systems (1976). The literature also documents the importance of partnerships with the local community, NGOs, and other outside agencies as essential components to ESD implementation (Elser et al., 2011; Moore et al., 2019; NCDPI, 2021b). Schools typically have greater leverage than a single teacher does in developing these partnerships, thus this case study focused on school level implementation of ESD practices, allowing the researcher to explore both school-wide ESD initiatives and teachers' planning of ESD. Although some community partnerships may extend beyond the four walls of the school building, the researcher conceptualizes a "school" in a non-traditional sense. Thus, a school serves as a place of learning for students and learning may extend beyond the school walls. Therefore, field trips to local places planned and initiated by the school still constitute an extension of a school's learning grounds.

Step 2: Determining the Number of Cases

Two cases were determined to be suitable for this line of research. Stake (2006) contended that a multi-site case study is advantageous over a single case study as it allows for similarities and differences to be explored within and across cases that have a common denominator. The common denominator in this particular study shared between the two cases was the designation of "Global Ready School" granted by North Carolina's Department of Public Instruction. Presently, there are only eight elementary/K-8 schools in the state of North

Carolina that have earned the Global Ready designation. Two of these schools were recruited to participate in this study.

Step 3: Determining Selection Criteria

For a school to take part in this research study the following criteria was established: 1) the school must be designated as a Global Ready school by the North Carolina Department of Public Instruction, 2) the school must be an elementary school, and 3) the school must be located in reasonable proximity of the researcher to allow for on-site visits. The proximity of these schools to the university was desirable, as Merriam (1998) explained that case study methodology requires a rich description of the case, which will only be achieved by immersing oneself in the school culture.

Selection of Participants

From an educational standpoint, the implementation of any program or policy at the school level depends on a variety of stakeholders (policy makers, administrators, and teachers). For this reason, data was collected from varying levels of influence aligning with Bronfenbrenner's Ecological Systems Theory (1976). During Phase 1 of this study, a school-wide survey was given to all certified educators at both participating schools. A total of 46 educators across both schools completed the survey. For Phase 2 of this study, data was collected from eleven participants, which included two members of a State Education Agency actively involved in the implementation and facilitation of the Global Ready Designation (exo-system stakeholder), two administrators (meso-system stakeholders), six teachers (micro-system stakeholders), and one community partner (exo-system stakeholder). These varying perspectives are crucial to an exploration of ESD as each stakeholder exerts its own influence on ESD implementation at the school level.

Participant Description

The pseudonyms Happy Meadows and Rolling Hills were assigned to each case and are used in the reporting and interpretation of findings. A total of 49 participants participated in this study. 46 of the 49 total participants took part in Phase 1 of the research, which involved participation in the ESD Implementation survey. Of these 46 participants, 27 of the respondents were educators at Happy Meadows and 19 were educators at Rolling Hills. While the survey did not ask identifying questions (i.e., grade level taught), data was collected related to teaching experience and attainment of the Global Educator Digital Badge (GEDB). These statistics are reported as counts and averages in Table 2. Of those taking the survey, the average teaching experience held by Happy Meadows educators was roughly 13 years, with Rolling Hills educators reporting a slightly higher average of about 15 years. There was a larger discrepancy in the number of educators obtaining their GEDB across schools. While roughly 62% of survey respondents from Happy Meadows had obtained their GEDB, this was only true for 10% of Rolling Hills respondents. This may be because Rolling Hills only recently obtained their Global Ready designation as a school.

Table 2

Mean Teaching Experience and Mean Attainment of GEDB

Descriptor	School 1	School 2
n	27	19
Average Teaching Experience (Years)	13.33	15.33
Global Badges Earned (Count)	17	2
Average Global Badges Earned	62.96%	10%

While members of the State Education Agency and the community partner did not participate in the ESD Implementation survey, these individuals did participate in Phase 2 of the

research study. During this phase, interviews were conducted with two members of a State Education Agency (SEA), administrators, teachers, and a community partner associated with Rolling Hills.

A total of four educators from Happy Meadows participated in Phase 2 of the research study. This included two upper grades teachers (3-5), a teacher from the lower grades (K-2), and a school administrator. It is important to note, however, that Ms. Daisy, while currently teaching in the upper grades (3-5), has experience teaching in the lower grades. During her interview she reflected on her collective teaching experience, across grade levels.

A total of five educators from Rolling Hills participated in Phase 2 of the research study. This included the administrator, one educator from the lower grades, two teachers that served the broader student population as specialists, and a community partner. Like Ms. Daisy, Ms. Maple also had experience serving as a general education teacher prior to assuming the role of a specialist. This was evident in her interview as she reflected broadly on her teaching experiences. Additionally, Ms. Birch, the Education Director at SustainableVisions, provided unique insight into ESD implementation as a former park ranger and informal educator herself. A general description of Phase 2 participants can be found in Table 3. Similarly, to the survey data, fewer Rolling Hills educators participating in Phase 2 of the study had obtained their GEDB compared to Happy Meadows participants.

Table 3

Interviewee Teaching Descriptions

School	Pseudonym	Role	Years of Experience	Grade Span Taught	Global Educator Badge
	Ms. Daisy	Teacher	9	3-5	Yes
	Ms. Goldenrod	Teacher	23	3-5	Yes

Happy Meadows Elementary (Case 1)	Ms. Periwinkle	Administrator	23	X	No
	Ms. Violet	Teacher	23	K-2	Yes
Rolling Hills Elementary (Case 2)	Ms. Birch	Community Partner	X	X	No
	Ms. Elm	Administrator	23	X	Yes
	Ms. Maple	Teacher	14	Specialist	No
	Ms. Sycamore	Teacher	17	Specialist	Yes
	Ms. Willow	Teacher	15	K-2	No

Step 4: Determining Appropriate Data Collection Methods

Case study methodology involves a variety of data collection methods to obtain a comprehensive picture of the case under study (Merriam, 1998). Stake (2006) delineated "observation, interview, coding, data management, and interpretation" as methods characteristic of case study research (p. 29). For this multi-site case study, surveys, interviews, fieldnotes, and artifact analysis not only addressed the research questions set forth, but also aided in triangulation. Stake (2006) emphasized any claim made as a result of case study methodology "needs to have at least three (often more) confirmations and assurances that key meanings are not being overlooked" (p. 33). Taken together, these data sources provided insight into RQ 4: How do two Global Ready schools compare in their conceptualization and implementation of global education, specifically ESD? A brief description of each material follows.

Survey

The first phase of this study involved the dissemination of an online survey through Qualtrics. The use of the survey served three key purposes: 1) aided in the recruitment of teachers who show a capacity for ESD implementation to participate in the second phase of the research; 2) as a means for making the case "embraceable" for a single researcher by providing a broad picture of trends in ESD awareness, knowledge, and implementation at the school level

through a quantitative method (Stake, 2006, p. 31); and 3) provided insight into RQ 1 and 2 which seek to understand teachers' perceptions of global education (specifically ESD), in addition to identifying common sustainability concepts taught by teachers.

The survey was sent to all certified staff at each school (i.e., school administrators and classroom teachers) as well as members of a State Education Agency (SEA). In total, the survey was completed by 46 certified educators across both schools. Survey questions inquired about participants' teaching experience, global education professional development (individual Global Ready designation), and experience teaching upon a variety of ESD topics (See Appendix A).

To increase the validity of the survey instrument, pilot testing occurred during the summer of 2021. The instrument was given to educators at an elementary school that is currently working towards their Global Ready Designation as these educators were likely to be familiar with the language (i.e., global education, sustainable development, etc.) of the survey instrument. Additionally, this ensured that the pilot study sample matched many of the characteristics of the participants recruited to participate in the multi-site case study in the Fall 2021 semester. Participants were asked to complete the survey using Qualtrics (Qualtrics, Provo, UT) and then participate in focus group discussions. Questions posed to participants during focus groups pertained to the readability, formatting, and language of the survey. This process allowed for the refinement of survey questions to increase the validity of the survey data obtained in the Fall of 2021.

Interviews

Semi-structured, conceptual interviews were conducted with administrators, teachers, State Education Agency (SEA) members, and a community partner to better understand their perceptions of global education and more specifically ESD (see Appendix B, C, D, E). Brinkman

and Kvale (2015) explained that “the questions in conceptual interviews explore the meaning and conceptual dimensions of central terms, as well as their positions and links within a conceptual network” (p. 177). Interviews sought to conceptualize teachers' perceptions of global education and how sustainability fit into their conceptions of global education, which provided insight into RQ 1: How do educators and affiliates of Global Ready elementary schools perceive global education, specifically Education for Sustainable Development (ESD)? Additionally, interviews helped address RQ 2 and 3: What sustainability topics are covered most by educators at two Global Ready schools in North Carolina? and How is ESD incorporated within global education at two Global Ready schools? Interviews were scheduled at times that were convenient for participants over Zoom. Interviews were recorded via Zoom and transcribed verbatim to ensure the integrity of the data.

On-Site Visits

On-site visits provided insight into RQ 2 and 3. Using the observation protocol (see Appendix F), fieldnotes were generated during each on-site school visit. Field notes allowed for the triangulation between interview and artifacts data sources. Additionally, field notes provided the researcher with the opportunity to unveil taken for granted assumptions that administrators and teachers failed to bring to light in their interviews. When on-site visiting schools, field notes were recorded through initial jottings which were later expanded to full field notes immediately following each observation (Emerson et al., 1995; Ravitch & Carl, 2016). The field notes written for both schools were both “descriptive” and “inferential” in nature (Ravitch & Carl, 2016, p. 162).

Artifact Collection

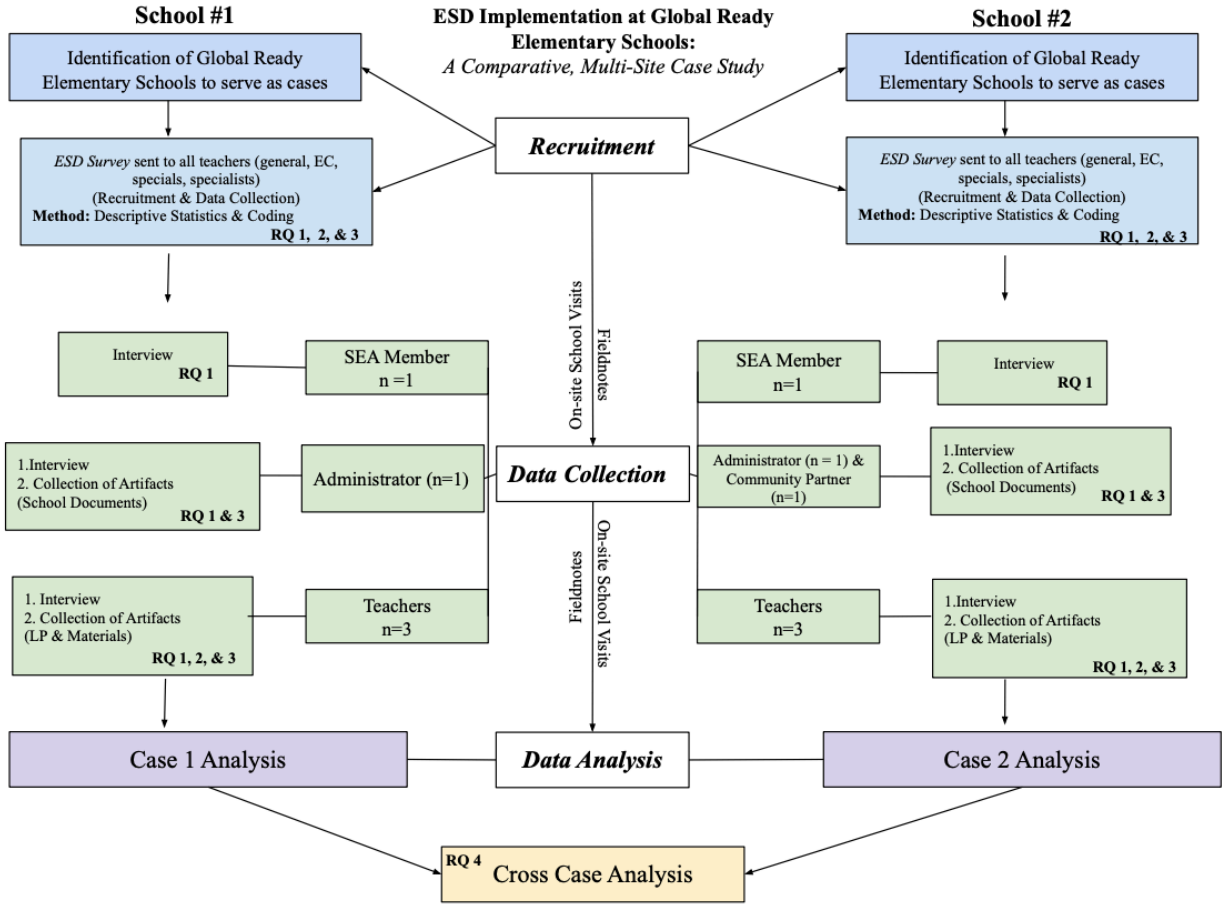
The collection of artifacts, such as lesson plans, school improvement plans, professional development materials, etc., allowed the researcher to answer RQ 2 and 3 which inquired about the most common sustainability topics addressed and ESD's incorporation into global education. At the curricular level, lesson plans and teaching materials were collected from teachers during on-site visits or through email communication. At the school level, documents such as school improvement plans, school websites, resources from professional development, etc., were collected from both staff members and school websites. Artifact collection and analysis provided insight into ESD implementation at all three of Elser et al. 's (2011) scales of influence (curriculum, campus, and community).

Procedures

Procedures for recruitment, data collection, and data analysis were replicated at each school site to support the ability to analyze themes across cases at later stages of the study (see Figure 2). The description of procedures that follows are listed in the order in which they occurred.

Figure 2

Research Methods Flowchart



Recruitment

Prior to the start of the research, administrators at Rolling Hills Elementary and Happy Meadows Elementary were contacted and presented with the research plan to determine their interest and gain their consent to participate in the study. After obtaining consent at the school level, a survey was distributed to all certified educators serving at each school site via Qualtrics. The first section of the survey provided an option for teachers to indicate their consent to participate in the survey. Once consent was obtained, participants were directed to the survey

questions. The survey aided the researcher in identification of educators who demonstrate skill and capacity for ESD instruction. These teachers were contacted to determine their interest in participating in interviews for the study.

Data Collection

Phase 1. The initial data collection phase began with the school-wide survey sent out to educators at both schools (n = 46) via Qualtrics (Qualtrics, Provo, UT). This survey provided school-wide descriptive data on educators' sustainability awareness, knowledge, and implementation. The results of the survey incited new curiosities, while also allowing for the refinement of data collection methods (specifically interview guides) which were implemented during Phase 2 of the research study.

Phase 2. The second phase of the study utilized qualitative methods as interviews were scheduled and carried out with State Education Agency (SEA) members, administrators, educators, and community partners. Each stakeholder was interviewed separately with a semi-structured interview guide. Appendix B, C, D, and E contain the interview questions formulated, which varied based on the stakeholder being interviewed. At the conclusion of interviews, administrators were asked for documents they believed to be relevant to global education implementation at their schools. From the survey and principal recommendations, three teachers from each school were recruited to participate in an interview, as well as provide artifacts related to their planning of ESD instruction (lesson plans, unit plans, teaching materials, and Global Educator Application Packet). While most artifacts were supplied by participants, some were also obtained from school websites. Artifacts ranged from lesson plans and pictures of global teaching and learning provided be participants to transcriptions of videos publicly available on school websites.

Data Analysis

Within-Case Analysis

Merriam (1998) suggested that analysis occurs within each case prior to engaging in cross case analysis. For this reason, data from each site was analyzed separately. A collective codebook was utilized to aid in the constant-comparative method (Glaser & Strauss, 1967) which was employed in the analysis of qualitative data.

Survey. Quantitative portions of the survey instrument were analyzed using descriptive statistics generated from Qualtrics. Questions that require written responses were analyzed using the constant-comparative method (Glaser & Strauss, 1967). Codes were developed inductively, and these same codes were applied to and extended upon in analysis of interview transcripts.

Interviews. Immediately following interviews, recordings were transcribed verbatim, with pseudonyms replacing the names of participants. Transcripts were uploaded to NVivo 12 and analyzed using the constant comparative method (Glaser & Strauss, 1967). A line-by-line approach was taken to coding (Glaser & Strauss, 1967). To stay close to the data, codes were often developed using participant's own words, producing many in vivo codes. Additionally, when possible, gerunds were utilized in code creation (Charmaz, 2014). After all interviews within a single case had been coded, references for each code were compared to the definition explicated in the codebook to ensure their propriety. During this process, the researcher engaged in a sub-coding process offered by Charmaz (2014) which involved coding the initial codes. This strategy allowed the researcher to ensure that the nuance of each code was retained and not lost in the first wave of data analysis to aid in the rich description necessitated by case study methodology (Charmaz, 2014). While this strategy was not necessary for each code, sub-coding did occur for a few, such as the code ***advocacy*** which was determined to be a salient code in the

analysis of Rolling Hills data. This code was further broken down into two subcodes: ***within school advocacy*** and ***outside school advocacy***. This nuance was essential to retain as it provides insight into teacher's beliefs about their capacity to affect change not only in their schools but in their surrounding communities, a finding that had significant implications related to Elser's et al.'s (2011) Sustainable Schools Framework. Once this process was complete, the most salient codes emerging from the first wave of analysis were chosen to engage in further analysis by way of axial coding. Salient codes were determined based on their frequency counts across interview transcripts in a single case and based on their presence across data sources (interviews, artifacts, survey, etc.). This allowed for increased validity of findings by means of data triangulation. While coding took an inductive approach during the first wave of analysis, a deductive approach was utilized during the second and third waves of data analysis whereby the literature was consulted when forming categories and themes. An example of this deductive approach is evident among the codes emerging from Rolling Hills data. At the curricular level, the following categories emerged after engaging in axial coding: origin of sustainability beliefs, beliefs about sustainability education, expression of sustainability beliefs, and planning ESD. These categories came together to form a theme related to Moroye's (2017) conception of the complementary curriculum.

Field Notes. Jottings from on-site school visits were fully expanded into field notes following each school visit (Yin, 1994/2008). In the expansion of these shorthand notes to narrative field notes, the first phase of analysis occurred. Analysis of field notes primarily aided in the triangulation of findings from interviews and artifact analysis.

Artifact Analysis. Artifacts used in analysis varied from online newsletters, pictures supplied by teachers of their global teaching and learning, and transcriptions of videos that were

located on school websites. Once obtained, all artifacts were uploaded to NVivo 12. To aid in triangulation, artifacts were analyzed after interviews to allow for the application of pre-established codes. Most codes applied to artifacts were already existing from the interview data and merely served to validate findings from the survey and interviews, however, on occasion new codes were created.

Individual Case Reports. Individual case reports were developed for each school site prior to cross-case analysis. Broader quantitative findings, such as descriptive statistics from the survey, were reported first and followed by detailed findings emerging from the qualitative interviews. Codes from interviews and qualitative portions of the survey were grouped into categories in ways that helped to answer Research Questions 1 through 3. These categories were then reduced to themes for each school site. Themes addressing the pre-established research questions, as well as additional findings, were compiled into an individual case report. An adapted worksheet provided by Stake (2006) in his book, *Multiple Case Study Analysis*, was used to organize data to aid in individual case write up (see Table 4).

Table 4

Research Question and Data Collection Alignment

Utility of Cases	Data Collection Method	Case A	Case B
Original Research Questions			
RQ 1: *How do educators and affiliates of Global Ready elementary schools perceive global education, specifically Education for Sustainable Development (ESD)?*	Survey Interviews		
RQ2: *What sustainability topics are covered most by educators at two Global Ready schools in North Carolina?*	Survey Interviews Artifact Analysis		

RQ 3: *How is ESD incorporated within global education at two Global Ready schools in North Carolina (i.e. examination at the curricular, campus, and community levels)?*		
3a. Curriculum	Survey Interviews (Teachers) Artifact Analysis (Teachers)	
3b. Campus	Survey Interviews (Administrators) Artifact Analysis (School Documents)	
3c. Community	Survey Interviews (Teachers & Administrators) Artifact Analysis	
Additional Themes Found		

Case Analysis Worksheet- Adapted from Stake (2006)

Note: This was used for individual case analysis.

Cross-Case Analysis

After each case had undergone its own analysis, similarities and differences among cases were studied via cross-case analysis to develop assertions or findings about the shared characteristic of the units of study, which is the Global Ready school designation (Stake, 2006). Thus, cross-case analysis aided in answering the multi-case research question, RQ 4: How do two Global Ready schools compare in their conceptualization and implementation of global education, specifically ESD?

A sorting and merging strategy offered by Stake (2006) was employed to unify findings across cases. Significant findings from both cases were written on a slip of paper with the source of the finding written on the back. These findings were combined into a pile and one by one the researcher began group findings by topic. These groupings were then given names and recorded in a worksheet originally created by Stake (2006) but adapted to fit the needs of this study. These unified findings were recorded as either answering a research question or as additional findings outside of the initial questions posed at the onset of the study.

The data collection methods employed in this study, and the various stakeholder perspectives sought, ensured that the study attended to the complexity of ESD implementation within two Global Ready schools. By starting with single case analysis and expanding to a cross-case analysis, this research identified areas of similarity and difference across two of North Carolina's Global Ready elementary schools, to add to the literature on the interconnection between global education and Education for Sustainable Development.

CHAPTER 4: CASE 1 FINDINGS

This chapter reports on the findings from the case study conducted at Happy Meadows Elementary School. The chapter begins with a rich description of the case, which is followed by the presentation of findings organized by research questions. The chapter concludes with a case summary, which synthesizes the findings across all three research questions, providing a holistic depiction of ESD implementation at Happy Meadows Elementary.

Happy Meadows Elementary School is situated in a growing town that sits on the outskirts of a bustling, metropolitan area. As the community in the surrounding city continues to diversify, so does the student population at Happy Meadows. This diversification has fueled the global teaching and learning occurring at the school, as Happy Meadows educators seek to not only provide students with opportunities to learn about other cultures around the world, but also seek to recognize and celebrate the culture of their students. From the time students walk in the door to the time they leave school, the environmental print located around the school communicates a message to students that they are not only represented, but welcome. Throughout the school the word “welcome” is written in different languages. Flags from all over the world hang from the tall beams in the main foyer, clearly communicating Happy Meadow’s vision for global education. These notable features of Happy Meadows make it a welcoming and positive place for students to learn. While the environmental print is helpful in communicating the mission of Happy Meadows Elementary to guests upon arrival, it is the commitment and daily actions carried out by educators that have sustained global learning at Happy Meadows. As the school comes off their first Global Ready renewal cycle, Happy Meadows educators are currently striving to take global learning to deeper levels.

Research Question 1

RQ 1 asked: How do educators and affiliates of Global Ready elementary schools perceive global education, specifically Education for Sustainable Development (ESD)? Survey data was primarily used to explore educators' perceptions at the school level. Respondents were asked to provide two words they associated with the phrases "global education" and "Sustainable Development." Findings from interviews with four Happy Meadows educators further validated survey findings and allowed for a deeper exploration of these initial findings.

Perceptions of Global Education

On the questionnaire, Happy Meadows educators were asked which two words they associated with "global education". The word associations provided by respondents yielded a variety of responses which were coded and then categorized as a means of data reduction (See Table 5). As expected, the category of "multiculturalism" was formed by variations of the words "culture" (7), "diversity" (3), and "multicultural" (1). The most noteworthy category that emerged from the data, comprising 16 references, was "values for global citizenship." This category was composed of the following codes: awareness (7), understanding (1), acceptance (1), inclusiveness (3), unity (2), responsibility (1), and global citizenship (1). It is important to note that only one association to "knowledge" was made by Happy Meadows educators. The response "world knowledge" was coded as "awareness," given that increased knowledge contributes to awareness, however, the majority of associations provided by educators extended beyond the global content knowledge supplied in the curriculum, which alone would reflect a superficial perception of global education. Rather, educator responses emphasized the values and dispositions of global citizens. In sum, it appeared that educators at Happy Meadows hold to the

belief that increased cultural awareness can produce an increased understanding of others, which in turn can promote inclusiveness and unity within the larger global community (See Table 5).

Further, it appeared that Happy Meadows educators view the purpose of global education as going beyond supplying content knowledge, as they are more concerned with how this new knowledge influences students' dispositions, values, and in turn their actions. Findings from interviews validated these initial survey findings. When asked what she believed to be the purpose of global education, Ms. Goldenrod stated:

> I think the big purpose for a global education is just to create citizens in a world where they're more understanding of other people. We can look throughout history and see that there were a lot of really horrible things that have happened because people just didn't understand each other just out of ignorance.

A variety of codes related to values and dispositions emerged from interviews with Happy Meadows staff. Some of these codes included: *adjusting for people, appreciation for difference, celebrating differences, becoming more understanding, being inclusive, developing caring students, developing citizens,* and *developing open-mindedness*. These codes support the idea that Happy Meadows educators do not view global education as neutral, but rather as having a significant character component.

Table 5

Happy Meadows "Global Education" Word Associations

Category	Code	Survey Responses
Global (5)	Global (5)	World (3), International, Continents
	Culture (7)	Culture (7)

Multiculturalism (11)	Diversity (3)	Diversity, diverse, diversity lessons
	Multicultural (1)	Multicultural
Curriculum/Teaching Practices (4)	Culturally Responsive (1)	Culturally Responsive
	Curricular Integration (1)	Integration
	Curricular Expansion (1)	Expanded
	Time (1)	Time
Values for Global Citizenship (16)	Awareness (7)	World Knowledge, Cultural Awareness, Awareness (5)
	Understanding (1)	Cultural Understanding
	Acceptance (1)	Acceptance
	Inclusiveness (3)	Inclusive (3)
	Unity (2)	Unity, Community
	Responsibility (1)	Responsible
	Global Citizenship (1)	Global Citizens

Coinciding with this belief in education for global citizenship is a teaching philosophy that emphasizes the importance of ***preparing students for the long-term***, rather than hyper focusing on short-term accountability measures. In fact, all the interviewees from Happy Meadows expressed a sentiment related to ***preparing students for the long-term***. Ms. Goldenrod summed up this belief nicely in the following statement:

> The fears that people really should have coming out of the last five years in a global pandemic, regardless of which side they're on and which side they believe [is that] we

> have to start teaching our students skills to help them in a long-term process and not just for an EVAAS score.

Coinciding with preparing students for the long term is the idea that ***education must go beyond basic skills.*** Although teachers at Happy Meadows noted the importance of the core subject areas and mandated curriculum, many expressed a broader purpose for education. In her interview, Ms. Violet stated, "They're getting a much broader education than just learning the reading, writing, and arithmetic that you would see at a non-Global Ready school." This broader education will no doubt serve students well, far beyond the standardized test and well into their adult lives. Additionally, an ***education beyond basic skills*** may result in increased engagement and motivation for learning as expressed by Ms. Periwinkle:

> I think when it's, "well, I'm just going to do reading to just learn how to read a level F book." Well, you know, that's not always so interesting and exciting as you know, this is what this is going to open the world for you.

Perceptions of SD

In addition to their perceptions of global education, Happy Meadows educators were also asked which two words they associated with sustainable development (SD). Word associations related to sustainable development yielded a variety of responses which were coded and then categorized as a means of data reduction (See Table 6). Findings suggested that educators at Happy Meadows Elementary School associate sustainable development primarily with topics of environmental sustainability as eight of the 32-word associations provided by respondents were environmental in nature. This finding suggests educators at Happy Meadows strongly associate sustainable development with environmental concerns. A total of four word associations related to social sustainability were provided by survey respondents, including references to "well-

being," "human resources" like food and water, and the word "social." Consistent with the literature, economic sustainability rarely emerged in participants' responses, however, one respondent did note "economic innovation" as their association with sustainable development.

Beyond appealing to the three dimensions of sustainability mentioned above, respondents alluded to other features of sustainable development. In fact, seven references were categorized as related to "Global Collaboration Towards the Goals." References in this category revealed respondents' awareness of the Sustainable Development Goals, which were created by the United Nations to promote collaboration among nations towards a more sustainable future. Additionally, respondents also offered words related to notions of time, which contributed to the development of the category "Sustainable Over Time." Responses falling into this category included variations of the words: "time," "sustainable," and "duration."

Table 6

Happy Meadows' "SD" Word Associations

Category	Code	Survey Responses
Environmental Sustainability (8)	Environmental (4)	Eco-friendly, Clean Planet, Environment, Environmental
	Reuse/Recycle (2)	Recycle, Reuse
	Safekeeping (2)	Protection, Preservation
Social Sustainability (4)	Well-being (1)	Well-being
	Human Resources (2)	Water, Food
	Social (1)	Social
Economic Innovation (1)	Economic Innovation (1)	Economic Innovation
Sustainable Over Time (7)	Time (3)	Present, Future (2)
	Sustainable (1)	Maintainable
	Duration (3)	Long-term, ongoing (2)

21st Century Skills (2)	Skills (2)	skills, skills education
Global Collaboration towards the Goals (7)	Global (3)	Global (2), World
	Sustainable Development Goals (3)	Global Goals, overarching goals, develop
	Cooperation (1)	Cooperation
Misc. (3)	Misc.	Change, better, responsible

Additionally, two respondents associated the words “skills” and “skills education” with SD, which contributed to the development of the category “21st century skills.” Although only two mentions of skills-based education were provided in the school-wide survey, a focus on 21st century skills was reiterated throughout interviews with four Happy Meadows staff members. In fact, Ms. Periwinkle, the school’s administrator, reiterated the school’s attention to developing students’ critical thinking skills in the following quote:

> What I've told them [parents] is we're not teaching kids what to think. We are teaching kids the steps to, how can you critically think? I'm not going to tell you what to believe. We all believe in different things, but we're needing to teach them the importance of critical thinking.

Given the uncertain nature of our current global, sustainability challenges, 21st century skills like problem solving, critical thinking, and collaboration are essential to ESD. The uncertainty of our current global sustainability challenges requires that education provide students with more than content knowledge, but the skills needed to grapple with complex and unsolved challenges they will face in the future. Interviews with educators at Happy Meadows educators revealed that

Problem-Based Learning (PBL) activities were one vehicle by which they aspire to develop students' 21st century skills.

Global-Sustainable Intersection

Additionally, Ms. Periwinkle had a clear vision related to the intersection of Global Education and Education for Sustainable Development. As an established Global Ready School, Happy Meadows is adept at incorporating global topics into their curriculum. In fact, recently Happy Meadows just went through the renewal cycle for their Global Ready designation. Yet Ms. Periwinkle noted that she believed it was time to take global education to the next level because teachers were ***getting in a global rut***. In discussing global education in her interview, she stated, "It was getting repetitive, and it was not moving kids forward or teachers forward." Further, she expressed her belief in the U.N.'s Sustainable Development Goals (SDGs) ability to enhance global education, allowing teachers to go beyond the surface level of global education and ***deepen students' cultural understanding.*** While she was fully transparent that her staff is not completely there yet, she noted that the SDGs are driving her focus and vision for her school as they seek to continually grow in their global teaching and learning as they come off their first renewal cycle.

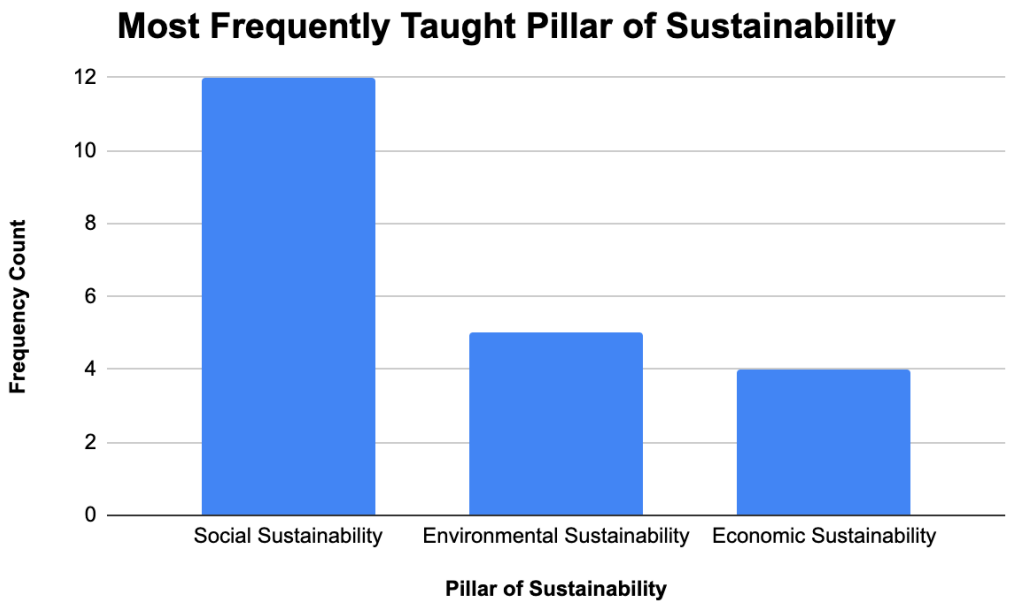
Research Question 2

Research Question 2 asked: What sustainability topics are covered most by teachers at two Global Ready schools in North Carolina? When asked which sustainability topic they most frequently incorporate into their subject area, 12 out of the 21 Happy Meadows survey respondents cited topics related to social sustainability (See Figure 3). Among the social sustainability topics selected were SDG 2 Zero Hunger (2), SDG 3 Good Health and Well-being (4), SDG 4 Quality Education (4), and SDG 10 Reduced Inequalities (2). A focus on social

sustainability topics was reiterated throughout interviews as well. Given that social sustainability is directly related to the well-being of people, topics of equity, equality, and social justice were prevalent at Happy Meadows (Mensah, 2019). For example, a school-wide project with Feed the Hungry combined both PBL and service learning, ultimately covering topics of poverty (SDG 1) and hunger (SDG 2). In partnership with Feed the Hungry organization, Happy Meadows hosted a rice packing event, where rice packs were sent to Haiti. Additionally, Ms. Goldenrod's interview revealed several social sustainability topics that she often covers using literature, which touch on topics of homelessness, inequality, and fasting, which were relevant to the student body at Happy Meadows.

Figure 3

Most Frequently Taught Pillar of Sustainability at Happy Meadows



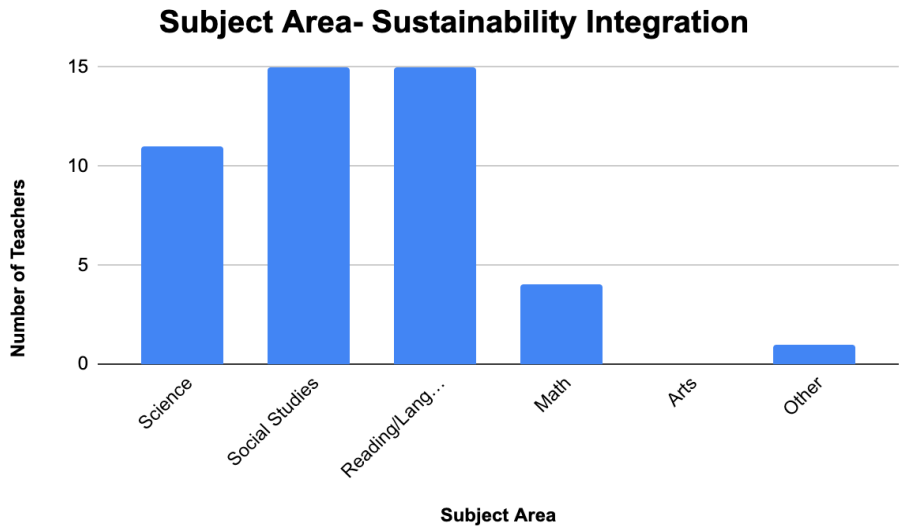
Fewer educators at Happy Meadows reported topics of environmental or economic sustainability as being taught most frequently. Of the five educators who reported teaching environmental sustainability topics most often, four reported teaching on Clean Water and

Sanitation (SDG 6) and one educator reported teaching on topics related to Life on Land (SDG 15). The focus on clean water and sanitation amongst this group of educators may be a product of the school's facilitation of a Water Project, which was initiated at the school level as an effort orchestrated by Ms. Periwinkle to begin introducing the SDGs to staff to deepen the global content being taught. Unfortunately, the Covid-19 outbreak caused the project to come to a halt, however, staff members reiterated that they hope to pick the project back up once a sense of normalcy is restored. Of the four teachers citing the economic dimension of sustainability as being most frequently taught, three educators reported topics of Responsible Consumption and Production (SDG 12), and one reported teaching frequently on Sustainable Cities and Communities (SDG 11).

When asked to indicate which subject areas they frequently incorporate sustainability topics, social studies (15) and reading/language arts (15) were most frequently cited (see Figure 4). Fewer teachers noted their integration of sustainability topics in the subject area of science (11), and even fewer indicated integrating sustainability topics into the subject area of math (4). The prevalence of teachers citing language arts as a subject conducive to sustainability integration was further validated by the emphasis that select interviewees placed on using literature to teach about global and sustainability challenges.

Figure 4

Subject Areas in which Educators Report Integrating ESD at Happy Meadows



Research Question 3

RQ 3 asked: How is ESD incorporated within global education at two Global Ready schools in North Carolina (i.e., examination at the curricular, campus, and community levels)? To answer this question, data was collected and analyzed at a variety of levels, all of which have an influence on students' educational experiences: 1) curriculum as implemented at the classroom level, 2) curriculum as implemented at the campus or school level, and 3) curriculum as implemented through outside partnerships.

The Curriculum

Interviews with educators revealed several approaches to planning for global instruction, at the curricular level, as well as instructional strategies that are deepening the global learning students are receiving at Happy Meadows. Interviews with the principal and three Happy Meadows educators validated the schools' perception of global education as a means for developing and instilling dispositions for global citizenship. The code-break down and

organizational scheme of codes related to curricular implementation at Happy Meadows can be found in Table 7.

Approaches to Planning

Different approaches to planning emerged throughout interviews with Happy Meadows educators. In discussing her own teacher preparation in the early 2000s, Ms. Goldenrod mentioned the heavy emphasis on integration when she was coming through her own teacher preparation program:

> The pedagogy coming out at that time was integration. Everything was integrated. So that was the basis of my educational background. I think [it] helps me, whereas other people, that framework of educational teaching changed from integration to more isolation and so I think because that was my initial background knowledge of teaching, that it just comes a lot more natural to me.

Ms. Goldenrod's statement revealed the contention between two types of instructional planning approaches which spurred the code ***integration vs. isolation.*** Both Ms. Violet and Ms. Goldenrod leaned towards a more integrative approach to global education, tackling the integration of global topics through units or around themes. For example, Ms. Goldenrod detailed a variety of integrated projects she has worked on with students, related to the broader topics of hunger, poverty, and immigration. This is very similar to the phenomena-based approach to planning Norden (2018) discovered while studying educators' approaches to planning a school-wide integrated project. This approach was noted as being a more "holistic and transformational" approach to ESD (Norden, 2018, p. 668).

Conversely, another teacher noted how she typically started with a standard when planning for global education. This was evidenced by the following quote made by Ms. Daisy during her interview:

> I'd start with the standard and then I would just start thinking about around the world, like telling time with clocks. We had to do elapsed time, just thinking about how it affects the world in general, how people in the world are also looking at these things that we're having our students look at.

This approach is very similar if not the same to the backward design method (McTighe & Wiggins, 2012) currently dominating teacher preparation programs, likely a byproduct of increased accountability measures. Ms. Daisy's standard-based approach to planning aligns with the additive approach taken by teachers when planning an integrated project in Norden's (2018) study. This approach emphasizes starting the planning process with a subject area. While the determination of which approach is more effective in global lesson planning is outside the scope of this study, such a finding begs the question as to whether certain approaches are more conducive to producing deeper cultural understanding via ESD.

Instructional Strategies

Several high-leverage instructional strategies for global education emerged in discussion with the administrator and educators at Happy Meadows, all of which validated the school's commitment to deepening global learning. Each of the strategies provide opportunities for students to engage in higher-order thinking, thereby developing their 21st century skills. Additionally, each of the strategies encourages students to attend to complexity.

Problem Based Learning. Interviews with Happy Meadows educators revealed a shared commitment to problem-based learning as a means of developing students' 21st century skills.

Ms. Goldenrod's account of PBL activities demonstrated her philosophy of education which looks beyond preparing students for short-term accountability measures but aims to ***prepare students for the long-term***. In her interview, Ms. Goldenrod detailed a PBL project that her team conducts annually, The South American Cookie Exchange:

> Each child is in a group and their group is assigned a country in South America and then they research cookies from that country. Usually in December a lot of people do cookie exchanges, so we do a South American cookie exchange, and we make and bake 1,200 cookies.

Throughout this activity, Ms. Goldenrod and her team ***allowed students independence*** to make their own batch of cookies. This independence ***allowed students the room to make mistakes***, which was welcomed by Ms. Goldenrod's team as valuable learning opportunities. This was demonstrated in the following quote:

> If you accidentally did salt instead of sugar, we served your cookies. Like it didn't matter. We served it, which happened. It happened often.

These missteps afforded learning opportunities to students, which allowed them to critically think about their process and where they might have gone wrong, ***developing their 21st century skills***. Additionally, the activity also afforded Ms. Goldenrod the opportunity to cultivate in her students the values and dispositions of global citizens. Throughout this PBL activity, students were encouraged to ***develop consideration for others*** by ***adjusting recipes.*** Ms. Goldenrod thought of this as a metaphor for ***adjusting for people*** in our globalized world.

> They would adjust recipes. You can use applesauce instead of eggs. A lot of our Indian families choose to do that, who choose not to eat poultry products they'll swap out or if they can't have gelatin, what can you replace instead of gelatin? So, we did a lot of not

> just learning about the country, not just learning about the cookie, but learning about people and how you sometimes have to adjust for people.

This statement reflects Ms. Goldenrod's commitment to deepening global education at Happy Meadows Elementary school by way of problem-based learning and attending to the character component of global education. These findings validated survey findings, which indicate educators at Happy Meadows Elementary perceive global education as having a significant character component and emphasize the importance of bringing an ethical lens to problem-based learning. Something that will be extremely important as solutions are developed to combat some of the world's major sustainability challenges

The importance of problem-based learning to the global curriculum was also emphasized by Ms. Periwinkle and another educator, Ms. Violet. In fact, Ms. Periwinkle mentioned that the school once had a PBL class as part of their Specials rotation. Unfortunately, there is no longer funding to support this position, however, that has not stopped educators like Ms. Goldenrod and Ms. Violet from making PBL a regular part of their classroom. In her interview, Ms. Violet stated:

> It seemed very overwhelming when we started. But then as we dug in and did that deep dive, we were able to see that this is pretty easy to incorporate through literature and math…problem-based learning exercises…it was very easy for us to make that connection.

Both problem-based learning and children's literature present scenarios, experiences, and events as they occur in real life. For this reason, PBL and using literature are just two avenues in which educators can deepen global learning, as these instructional strategies intend to mirror real life complexities.

Comparing and Contrasting. Another high leverage practice reiterated throughout interviews with Happy Meadows educators was the use of comparison as a means for exposing students to other cultures, while simultaneously providing students an opportunity to relate to the content. For example, during her interview, Ms. Goldenrod detailed the following 5th grade social studies unit she has conducted over the years:

> We talk about North American government in the United States. That's a special standard we have and so we connect that to the different forms of government that are found in the different countries in South America. So, after we learn about the government of the United States, then we learn about all kinds of governments that are in the world. Then they do a project where they research the government of the different countries in South America and they see which countries are most like the government of the United States that they live under.

Many teachers may view mandated curriculums as constraints to global education, however, Ms. Goldenrod models how educators can cover mandated standards while still expanding the curriculum to a global scale. Ms. Periwinkle reiterated the importance of comparison in the following statement from her interview:

> I think the biggest thing has helped us kind of make a comparison to, you know, to what's happening someplace else, but also to be more proactive here too, because globally doesn't just mean that we're looking at other places we've got to look here too.

From this statement it is evident that comparing and contrasting may open the door to glocal learning, which encourages students to make connections between local and global issues. As students analyze how global problems manifest locally, students are better able to understand their own responsibilities as global citizens.

Looking at Present Connections. Another high-leverage practice for deepening global education that emerged from an interview with Ms. Periwinkle was the strategy of looking for present connections to the global content. This was evident in the following statement made by Ms. Periwinkle:

> I really do think that the biggest thing [that] has moved us forward is we have to look at current and future as opposed to everything being a hundred years ago, this is what it was like in…I keep saying Africa, but that's the one that typically we're not talking about present day. We were talking about safaris and yes, that is very much a part, but there's other things.

This strategy, offered by the principal, Ms. Periwinkle, highlights an instructional strategy that global educators can take to move beyond superficial global content. Focusing too much on the past or history could lead to stereotypical thinking about other places and people, which could run counter to a global curriculum that aims to develop global citizens. Thus, the strategy offered by Ms. Periwinkle attends to the complexity of global content as both historical and presently evolving. This has guided the type of professional development supplied to teachers, which goes beyond holidays and traditions to consider "what would your life be like if you were a second grader there, as opposed to a second grader here in our town?"

Table 7

Curriculum Level Coding Scheme for Happy Meadows

Theme	Category	Code
Approaches to Planning for ESD	Integrative Approaches to Planning	Integration over Isolation
		Phenomenon-Based Approach
	Additive Approach	Starting with a Standard

		Teaching Standards in Isolation
Instructional Strategies for Attending to Complexity	Problem-Based Learning	Allowing room for Mistakes
		Allowing Students Independence
		Learning from Mistakes
		Adjusting Recipes
		Adjusting for People
	Comparing and Contrasting	Looking at Present Day Connections
		Connecting to Local
		Glocal Learning
	Using Literature	

The Campus

Interviews with educators, on-site field visits, and artifact analysis revealed Happy Meadow's commitment to providing all individuals, both students and community members opportunities for global learning. Additionally, Happy Meadows demonstrated a commitment to both the local and global community in their facilitation of service-learning projects. These findings blur the lines between the campus and community levels of Elser et al.'s (2011) Sustainable Schools Framework.

Global Education for All

To earn North Carolina's Global Ready designation, schools must successfully implement "leading-edge language instruction" (Betsill, 2022, p. 5). Happy Meadows has done this through their Mandarin Immersion Program, which provides students an opportunity to learn a second language from a native speaking teacher starting in kindergarten and continuing

through fifth grade. Students enrolled in the immersion program receive eighty percent of all instruction in Mandarin and twenty percent in English.

While there are many benefits of immersion programs, it is important to recognize that many parents elect to have their children begin kindergarten in a traditional classroom in which English is spoken. Yet, Happy Meadows ensures that all students have access to a global education, regardless of their enrollment in the Mandarin immersion program or a traditional classroom. This commitment to providing all students with a global education, resulted in the code ***beyond immersion****,* and is an important consideration when discussing the equitable nature of global education at Happy Meadows. In fact, the Mandarin teachers at Happy Meadows were often viewed as a valuable resource (***teachers as resources***) for learning and teaching throughout the entire school, rather than being siloed in their own classrooms. Morning meetings are just one way in which Mandarin teachers are viewed as school-wide resources. These meetings were planned collectively via Google Docs by grade level. For example, Monday's meetings primarily focused on language, whereas Tuesdays were dedicated to a "Global Highlight." On several occasions, the language highlight included a pre-recorded link for other classes to listen to a Mandarin teacher read a children's book in their native language. Additionally, math connections were often made as a Mandarin teacher would lead students in counting to ten in Mandarin. In this way, the talents and resources that Mandarin teachers bring to the school were not limited to their individual classrooms, but rather were seen as a shared resource for all students as they acquire a rich global education.

Another way in which Happy Meadows is making global education available to all students is through their assignment of continents to various grade levels (see Table 8). This is just another way that global education is radiating throughout all classrooms rather than siloed in

the immersion classes. Many teachers touted the benefits of this approach, mentioning that it allowed the content to be more accessible to both students and teachers. For example, kindergarten teachers are assigned North America as their continent, given the developmental level of students at this grade level.

Table 8

Happy Meadows' Grade-Level Continent Assignments

Grade Level	Continent Assignment
Kindergarten	North America
First	Europe
Second	Africa
Third	Asia
Fourth	Australia
Fifth	South America

It is also important to note, however, that teachers recognized that this is only a starting place for global education. For example, in her interview, Ms. Goldenrod emphasized the importance of not getting so focused on the grade level continent that one forgets the cultural assets that their own students bring to the classroom in the following quote:

> So not just focusing on South America in fifth grade, which a lot of our Participate modules were and the lessons we did were on South America, but also bringing in other subject areas, different cultures and making sure we're not excluding things and making

> sure that we're really mindful of what our students are doing and helping educate their peers about that as well.

Ms. Periwinkle, the administrator at Happy Meadows, reiterated this same sentiment in the following quote:

> What we also did is we looked at who are the kids that we're serving? What can we celebrate across the whole board?

Given Happy Meadows' diverse student population, both Ms. Goldenrod and Ms. Periwinkle comments make it evident that Happy Meadows places a value on not only providing students with access to the world through the exploration of a continent, but also curriculum that reflects their own culture and place in the larger global community.

Global Night

Once a year, students have the opportunity to showcase their global learning at the school's annual Global Night which has been held both in person and virtually in the wake of the Covid-19 pandemic. Happy Meadows staff described their annual Global Night as an opportunity to open the campus to the community and allow students to showcase their global learning. Ms. Periwinkle provided the following description of the school's annual Global Night:

> We also do a global event for our families every year and that's typically in May. Last year, we did it again virtually. But what we normally do is we showcase what the kids have learned about their areas [continents] and the whole school becomes a gigantic museum.

In the past, the school has brought in local food trucks, serving a diverse array of cultural foods for families to try, something that has been a big hit for both teachers and families participating in the event. In her interview, Ms. Periwinkle of Happy Meadows mentioned her desire to make

the event even more interactive in the future by bringing in "people to do presentations" and/or having "someone come in and do henna." Ms. Periwinkle had the following rationale for making the school's Global Night more interactive in the future: "When it's a museum, it's great, but you know, people will come in, they look at stuff, and then they want to go get food. But if we made it more interactive then we thought, it could be a learning event, not just for our kids, but for our families too." This statement is reflective, not only of Happy Meadows' commitment to growing and improving their global events each year, but their focus on encouraging families to participate in global learning alongside of their children (See Table 9).

During the Covid-19 pandemic, Happy Meadows educators were still able to hold a high impact Global Night virtually. For this virtual event, a spreadsheet with movie, recipe, and restaurant recommendations was shared with parents (***recommending local restaurants***, ***recommending cultural movies, providing cultural recipes).*** Each grade level composed their own spreadsheet. For example, first grade's European spreadsheet contained links to recipes for French Butter Cookies, Linzer Tarts, Scottish Shortbread, and more. Given third grade's focus on Asia, movies like *Disney Adventure: Expedition China* and *National Geographic Secrets of Wild India*, among others, were recommended for family viewing. This event is notable in that it also supported businesses in the local community as each grade level recommended authentic, local restaurants from which families could order takeout and try different cultural cuisines. As part of the virtual global night, families were encouraged to try something new together, whether it was a food, movie, or recipe. Students were then encouraged to share about their experiences by ***crafting a review*** using an app called Flipgrid, which allowed for communication and conversation between students about their experiences. Not only does this event further validate the school's emphasis on twenty-first century skills, but it also encourages global learning at

home, reinforcing the idea that global learning can happen outside of school and in students' local communities.

Service Learning

Field visits and interviews also confirmed the importance of service learning to Happy Meadows at the campus level. On a visit to the campus, collection boxes lined the walls, serving as drop off locations for canned food items as part of the school's most recent canned food drive. Interviews with teachers revealed Happy Meadow's attention to their community, which guides the work being done within the school walls. Interviews with teachers reported that the school has held both food drives and coat drives as an attempt to serve their local community. The school's Global Ready designation has also spurred them to serve the global community as well (***service learning in the global community***). During an interview with Ms. Periwinkle, she reflected on how students often guide and direct the service learning that occurs at the school level, stating:

> A few years ago, when they had the wildfires in Australia. Well, our fourth graders where I go, because they study Australia, we have to do something and, and they learned all about it and they fundraised.

Both the principal and Ms. Goldenrod reflected on another project that was initiated at the school level in collaboration with the Feed the Hungry Organization, but clearly left its mark on individual classrooms as evidenced by the following statement made by Ms. Goldenrod:

> In mathematics we did a project with Feed the Hungry, where students learned about the countries and poverty and impoverished children and children who are malnourished. They did some math investigations on how they financially could feed children as a school. How much money did we need to raise and how much would each person need to

> contribute to do that? And also, how much food would need to be packed per child per portion, to feed them for a sustainable amount of time? It was an all-encompassing activity. And at the end of it, they actually did pack food that was shipped to impoverished countries. One year it was Haiti, one year I believe it was Guatemala.

Although Ms. Goldenrod did not express familiarity with the Sustainable Development Goals, the Feed the Hungry Project allowed her and other Happy Meadows educators the opportunity to discuss topics of social sustainability through this PBL, turned global service-learning project. These clear ties to topics of poverty and hunger in both the local and global community are extending students' learning of global content beyond food and flags by focusing on real world problems. Even though educators at Happy Meadows did not refer to these projects as ESD-oriented, these findings suggests that quality ESD instruction can often be found at the intersection of problem-based learning and service-learning projects.

One school-wide project mentioned by interviewees in direct relation to topics of sustainability was their Water Project, which was initiated as a school-wide project prior to the Covid-19 outbreak. This project was mentioned by all interviewees during their interviews, indicating its influence on their own classrooms. In reflecting on the Water Project, Ms. Violet stated:

> It sounded like something that would really be meaningful to my students. It would be something that would be tangible that they can understand what it's like to carry a gallon of water and really understand what that work looks like for people and why clean water is so important for us and why we should care for our rivers and oceans and water sources better than we do. So, I think that is something that could be really tangible and understandable for kindergartners.

The Water Project is just the first of many more sustainability projects to come as Ms. Periwinkle pushes her staff to deepen global learning using the Sustainable Development Goals.

Table 9

Campus and Community Level Coding Scheme for Happy Meadows

Theme	Category	Code	Sub-Code
Global Education for All	Going Beyond Immersion	Establishing a Monthly Focus	
		Grade Level Continent Assignment	
		Teachers as Resources	
	Holding a Global Night	Planning Interactive Events	Henna
			Food Trucks
		Planning Virtual Events	Recommending Recipes
			Recommending Cultural Movies
			Crafting a Review
Service-Learning	Service Learning in the Local Community	Holding Coat Drives	
		Holding Canned Food Drives	
	Service Learning in the Global Community	Facilitating a Water Project	
		Feed the Hungry Project	
Local-Global Community Partnerships	Local Community	Library	
		Male Mentors	
		Backpack Program	
		Town Multicultural Festival	
	Regional Community	Ron Clark Academy	

	Global Community	Feed the Hungry Organization
		Chinese Organization

The Community

Through data collection and analysis, it became evident that Happy Meadows places a large emphasis on the community. According to Ms. Periwinkle, “the community is very important to the school and the school is very important to the community.” The community has partnered with the school in many ways to improve the outcomes of students in attendance at Happy Meadows. For example, peer reading, male mentoring, and backpack programs have been established and sustained by supportive community members and local organizations who are eager to lend their support. The school’s support for the local community is evident in their dedication to service learning at the campus level and through their support of local businesses, as evidenced by their recommendation of local restaurants during their virtual global night.

One of the most significant partnerships established by Happy Meadows is with the organizers of the town’s multicultural festival, which occurs annually in the local community. According to Ms. Periwinkle, the multicultural festival provides “an opportunity where we get to see in our own community, people from all different backgrounds. And they've been great with resources, or you know, hopefully when we can get back to having people come in to do presentations and teach us more.” This partnership has opened opportunities for Happy Meadows to bring in community support in their global education endeavors, however, the partnership is not one-sided. Ms. Periwinkle described the school’s role and contributions to the town’s Multicultural Festival in the following way:

> What they've asked us for our role in that is to, I use that as an event to, to educate parents that might be interested about coming to the Mandarin program, but we also educate about China. We've talked about the Autumn Festival and then our kids performed for the whole festival, which was nice. They sang a song in Mandarin, and they did a Kung Fu presentation.

This partnership is evidence of a mutually beneficial partnership in which all partners contribute and benefit by the partnership.

Case Summary

In summary, both Education for Sustainable Development and global topics were apparent at Happy Meadows Elementary School. Survey data indicated that topics related to social sustainability (poverty, health, quality education, and reduced inequalities) are most frequently taught by school staff, both at the curricular and campus levels. Given the school's Global Ready designation, it comes as no surprise that natural connections are being made between global concepts and topics of social sustainability. It is important to note, however, that Happy Meadows has taken strides towards addressing forms of environmental sustainability, such as SDG 6: Clean Water and Sanitation, through the facilitation of a school-wide Water Project. A focus on the SDGs as part of a global curriculum is just one way that Happy Meadows administrator, Ms. Periwinkle, is pushing her staff to take global learning to a deeper level.

Interviews, field visits, and artifact collection further illuminated approaches to deepening global education at the curriculum, campus, and community levels. Problem-based learning, making present-day connections, and comparative approaches are a few of the ways that Happy Meadows educators are developing students' 21st century skills and dispositions for global citizenship.

CHAPTER 5: CASE 2 FINDINGS

This chapter reports on the findings from the case study conducted at Rolling Hills Elementary School. The chapter begins with a rich description of the case, which is followed by the presentation of findings organized by research questions. To conclude the chapter, a case summary synthesizes findings across research questions 1 through 3, providing a holistic description of ESD implementation at Rolling Hills.

Situated on the outskirts of a large city and tucked away on a forty-acre property within a residential area lies Rolling Hills Elementary school, which has earned designations for being both a Global Ready and Green School. The hallways of Rolling Hills are teeming with color as artwork hangs around every corner and communicates an appreciation for the arts and creativity. A venture into a second-grade classroom finds a teacher sewing gingerbread men with her students in anticipation of the upcoming holiday break. Nestled outdoors in the "backyards" of many classrooms, brown bushes and brambles have encroached on one another in what used to be the school's pollinator garden. A colorful sign can be found in the middle of the detritus and withered plant material hosting the name of SustainableVisions, a community partner that works with the teachers at Rolling Hills and funds many of their sustainability projects. Among the brown brambles, two bright orange pumpkins lie decomposing in the middle of the garden, likely thrown out as Fall festivities gave way to the winter holidays. Outside the cafeteria are two turnable compost bins, each containing fresh compost which has been left undisturbed for some time. While seemingly insignificant, these small details all tell a story about sustainability education at Rolling Hills Elementary in the wake of the Covid-19 pandemic.

Research Question 1

Research question one asked: How do educators and affiliates of Global Ready elementary schools perceive global education, specifically Education for Sustainable Development (ESD)? Survey data was primarily used to explore educators' perceptions at the school level. Respondents were asked to provide two words they associated with the phrases "global education" and "Education for Sustainable Development."

Perceptions of Global Education

Findings suggested that teachers at Rolling Hills Elementary largely perceived global education as associated with multiculturalism and the development of certain values (See Table 10). Variations of the word *culture* occurred a total of eleven times. Additionally, words related to diversity occurred a total of five times. Together the codes "culture" and "diversity" were combined into the category of "multiculturalism." There were also many values that teachers associated with global education, such as "understanding," "inclusiveness," and "citizenship." While these teachers perceived the content related to global education to be multicultural in nature, it also appeared that teachers at Rolling Hills recognize the importance of developing character that can guide how this new knowledge is acted upon. Some connection was made to the earth and environmental issues, however, these references occurred less frequently.

Table 10

Rolling Hills "Global Education" Word Associations

Categories	Code	Responses falling under this code
Multiculturalism (16)	Culture	culture (6), cultural (2), human (2), experience
	Diversity	diversity (3), multiculturality, identity

Earth (6)	World/Earth	earth, world (4)
	Environmental Issues	environmental issues
Affective Pieces (8)	Awareness	knowledge, awareness
	Understanding/Empathy	understanding (2)
	Citizenship	citizenship, community
	Inclusiveness	inclusion, inclusive
	Share	share
Misc. (6)		interesting, student, important, immerse, enlightening, exciting

Perceptions of SD

When teachers were asked which two words they associated with sustainable development, responses fell into the following categories: "Ecological Sustainability," "Social Sustainability," "Actions," "Values," "Sustainable Development," and "Significant" (see Table 11). Words falling into the category of "Ecological Sustainability" primarily consisted of references to ecological concepts ("green living," "ecosystem") or ecological issues ("pollution," "global warming"). This category can be interpreted as what teachers perceive to be the content or knowledge associated with sustainable development. Words falling into the category of actions primarily consisted of words related to "reusing," "recycling," and "preservation." The word "innovation" was also provided by one survey respondent which was also categorized under actions promoted by SD.

Like the word associations provided for "global education," a category related to values also emerged during analysis of SD word associations. Words coded as values included:

"conscientious," "thoughtful," "integrity," "respectful," and "responsible." These findings are further supported by the definitions that some Rolling Hills teachers provided for ESD. One teacher supplied the following definition of ESD: "The practice of teaching students to be good stewards of the earth, reusing, recycling, + reducing waste." This definition emphasizes the action that ESD necessitates, as well as confirmed the emphasis Rolling Hills teachers placed on environmental sustainability. This environmental emphasis was reiterated by another teacher who defined ESD as: "an approach to teach students through environmental focused curriculum." Missing from survey responses were words related to the economic pillar of sustainability. This may be due to sustainability's more visible ties to environmental issues, as this is often the most overemphasized dimension of sustainability (Borg et al., 2014; Redmen et al., 2018; Wolff, 2017).

Table 11

Rolling Hills "SD" Word Associations

Categories	Code	Survey Responses
Ecological Sustainability (9)	Ecological Concepts (7)	green, green living, ecological, ecosystem, earth (2), environment
	Ecological Issues (2)	pollution, global warming
Social Sustainability (1)	Health (1)	health (body & mind)
Actions (8)	Reuse/Recycle (4)	reusable, renewable (2), recycling
	Preservation (3)	safekeeping**,** keep, conservative
	Innovation (1)	innovation
Values/Character (5)	Character/Values (5)	conscientious, thoughtful, integrity, respect, responsible
	Development (1)	development

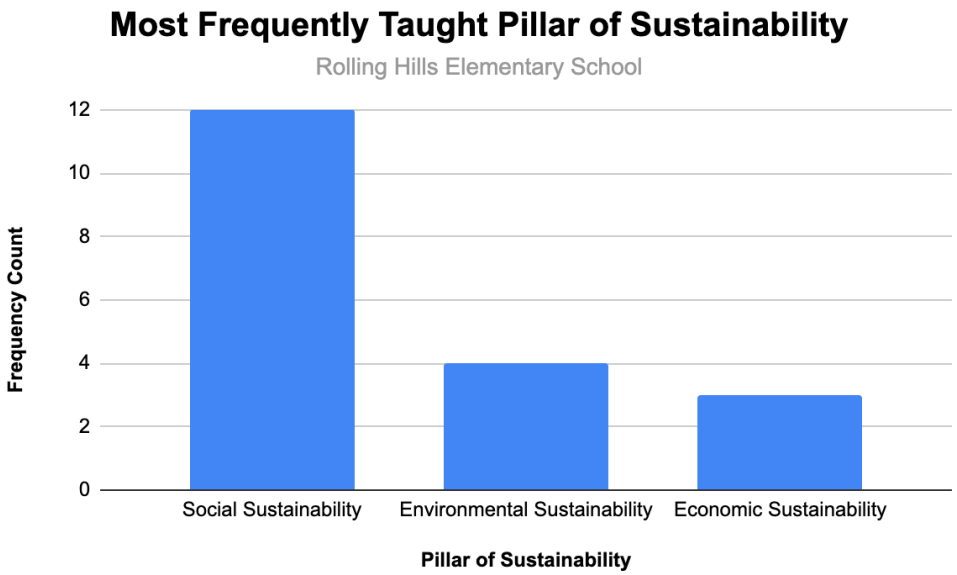
Sustainable Development (4)	Future (1)	future
	Goals (1)	goals
	Resources (1)	resources
Significant (2)	Significant (2)	critical, necessary

Research Question 2

Research Question 2 asked: What sustainability topics are covered most by educators at two Global Ready schools in North Carolina? To answer this question, data from a school-wide survey on ESD implementation was analyzed. When asked which sustainability topic they most frequently incorporate into their subject area, 12 out of 19 respondents cited topics related to social sustainability (See Figure 5). Among the social sustainability topics selected were poverty (2), hunger (3), good health and well-being (2), gender equality (1), reduced inequalities (2), and peace, justice, and strong institutions (2).

Figure 5

Most Frequently Taught Pillar of Sustainability at Rollings Hills



Survey data revealed that topics of environmental sustainability were taught far less frequently school wide. Only four of the 19 teachers completing the survey at Rolling Hills indicated they covered topics related to environmental sustainability most frequently. Of those who did cite environmental sustainability as their most frequently taught form of sustainability, topics related to life on land and life below water were referenced. Additionally, three teachers mentioned they taught topics related to economic sustainability more frequently than other forms of sustainability. All three teachers noted that this was accomplished primarily through their integration of topics related to responsible consumption and production.

The heavy emphasis placed on topics of social sustainability may be due to the school's Global Ready designation. Topics such as poverty, food insecurity, and equal rights go hand in hand with a global education agenda. Therefore, there was evidence to suggest that the intersection between topics of social sustainability and global education might be more readily integrated by teachers working in a setting where global education is prioritized. Surprisingly, issues of social sustainability were not addressed in open-ended survey items that asked teachers to provide two words associated with ESD and their own definition for ESD. This may mean that teachers do not view their current work, the teaching of social topics, as being sustainability related due to their perception that sustainability topics are primarily environmental in nature.

Despite the frequency at which social sustainability topics are taught school-wide, it is important to note that interviews with four Rolling Hills educators during the second phase of data collection conveyed a heavy emphasis on topics related to environmental sustainability. Interviewees mentioned activities related to teaching students about decomposition through composting and making and feeding worm bins. Additionally, interviewees mentioned teaching

students about pollinators, as well as providing students with experiences making seed bombs, packing seeds for the butterfly highway, putting in a pollinator garden, and releasing butterflies.

Global-Sustainable Intersection

While social sustainability topics were mentioned by these educators, they were also able to see connections between global education and environmental sustainability issues. For example, Ms. Maple mentioned how using a global lens when discussing environmental sustainability topics "could help them [students] bring ideas and solutions to some of our problems." She went on to discuss the fact that although their school is not located near a large body of water, there is still a "need to teach them that there's water pollution." In her interview, she stated, "We don't live by a body of water. We have a river, but that [students need to be made aware that] there are bigger water pollution problems going on around the world."

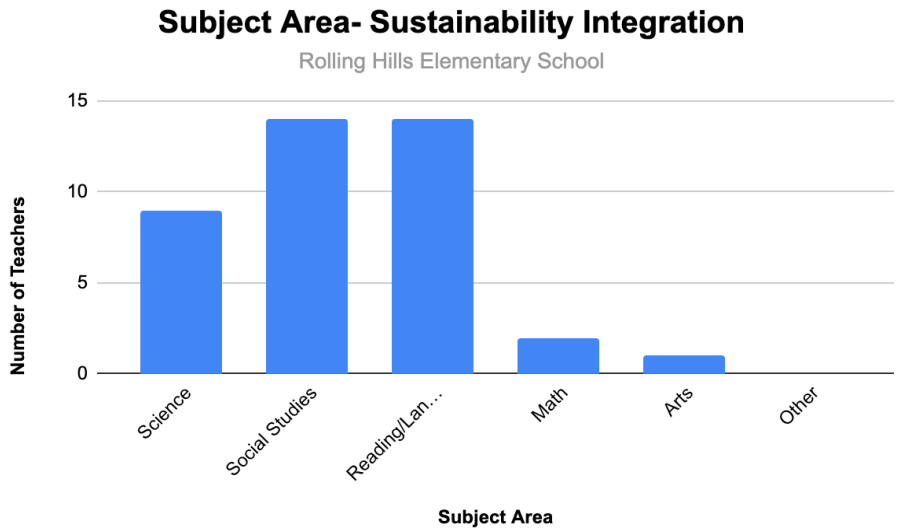
Additionally, the principal at Rolling Hills Elementary discussed how one of her leading teachers is skilled in showing the connection between environmental sustainability and global issues when she stated that Ms. Sycamore "is very involved in our global aspect in looking at the sustainability through the environment, whether it's a recycling lesson or clean water and just opening kids' eyes to what's beyond our borders. What happens when you throw something away? What's that trickle-down effect? And then, you know, just cause you throw it away and the trash man takes it. It's not gone." Though connections to environmental sustainability topics were less frequently noted school-wide, it is apparent that some Rolling Hills educators are capitalizing on the intersection that exists between global themes and topics of environmental sustainability.

Subject-Area Integration

When asked to indicate which subject areas they frequently incorporate sustainability topics, social studies and reading/language arts were most frequently cited (see Figure 6). Fewer teachers noted their integration of sustainability topics in the subject area of science (9), and even fewer indicated integrating sustainability topics into the subject area of math. The prevalence of teachers citing language arts as a subject conducive to sustainability integration is further validated by the emphasis that select interviewees placed on using literature to teach about global and sustainability challenges. Additionally, observations from field visits confirmed the value Rolling Hills teachers place on literature.

Figure 6

Subject Areas in which Educators Report Integrating ESD at Rolling Hills



Research Question 3

Research Question 3 asked: How is ESD incorporated within global education at two Global Ready schools in North Carolina (i.e., examination at the curricular, campus, and community levels)? To answer this question, data was collected and analyzed at a variety of

levels, all of which have an influence on students' educational experiences: 1) curriculum as implemented at the classroom level, 2) curriculum as implemented at the campus or school level, and 3) curriculum as implemented through outside partnerships.

The Curriculum

Although increased emphasis is placed on formally mandated curriculum, the curriculum does not exist apart from the teacher as its implementation is influenced by the experiences, social positioning, and lens of the educator responsible for its implementation (Moroye, 2017).

Through interviews with educators at Rolling Hills elementary, the constraints formal curricula imposed on the pursuit of global and sustainability education were noted, yet education for sustainable development persisted (See Table 12). The persistence of sustainability education in light of counterproductive curricular demands supplies evidence of Moroye's (2017) conception of the "complementary curriculum" which is defined as "the embedded and often unconscious expression of a teacher's beliefs" (p. 351). To examine how ESD was incorporated in the curriculum at the classroom level, exploration of teachers' sustainability beliefs and their expression within the classroom was necessary.

Origin of Sustainability Beliefs

Given the absence of sustainability education in much of the formally mandated curriculum, it is necessary to explore where teachers' passions and beliefs surrounding sustainability originate from in the first place. Without these passions and beliefs there would be no driving force to ensure their incorporation into the school curriculum, given there are currently no mandates on sustainability education.

Affective Childhood Experiences. Of the educators interviewed at Rolling Hills, some discussed their childhood experiences connecting with nature. For example, in reflecting on her

own childhood in comparison to her students' upbringing, Ms. Willow noted, "When I grew up, you know, and I know everything's changed we just played outside and as long as you could like hear the bell at the back door, you were okay." Ms. Sycamore shared a similar sentiment in describing her childhood in the mountains where she spent time "in the woods and just hiking and playing in the creeks and learning what creeks I could drink water out of." These memories and early childhood experiences are evidence of these educators' own affective experiences with nature, which have influenced their desire to preserve these natural resources for future generations.

Adverse Personal Experiences. Many of the participants looked fondly on their childhood experiences as a driver of their sustainability work, however, it is important to also note that this drive may emerge from adverse life experiences. Given Ms. Sycamore's outdoor experiences as a child, it came as no surprise that she also supplied these experiences to her two young boys as they were growing up, who frequently spent time playing in the woods behind their home. Sharing a very personal story, Ms. Sycamore revealed that both boys received rare cancer diagnoses in their pre-teen years. These diagnoses were later linked to a local company dumping "a degreaser that a facility used to make car and airplane parts" within a mile of their home and in the same general area in which her boys typically played. This spurred Ms. Sycamore to action, ultimately "getting the EPA involved and moving that in the direction that it needed to go for cleanup." This advocacy within her community has also spurred sustainability advocacy within her school and has guided much of the work she has done to integrate sustainability education to the curriculum. In her interview, Ms. Sycamore discussed how this personal hardship influenced her own sense of agency: "So I started thinking I have an opportunity, I'm just a librarian, but I have an opportunity to influence some of these future

decision makers. So that's why I started doing it." Ms. Sycamore's beliefs related to sustainability are clearly evident in her teaching and are not merely an unconscious expression of her beliefs. As someone who has seen the severe impact that unsustainable practices and negligence can have on innocent individuals, Ms. Sycamore has made it her goal to educate her students on sustainability so that they can make more ethically sound and sustainable decisions as future leaders.

Sustainability Education Beliefs

Among the educators interviewed at Rolling Hills Elementary, they emphasized the burden that is currently placed on younger generations related to the myriad of global sustainability issues that lie ahead. The educators interviewed from Rolling Hills Elementary School shared a common concern for balancing awareness with developmental appropriateness when integrating sustainability topics into the curriculum. In fact, several educators emphasized the importance of avoiding scare and shaming tactics when discussing sustainability topics with elementary-aged students. Ms. Sycamore, the school librarian and one of the school's leading educators of sustainability education demonstrated this in the following statement:

> I don't want to scare anybody. I want to get people enthusiastic and passionate about it, but there's that fine line of saying, you know, "Hey, we're good. We want to make the world a better place." And that's kind of the way that we push it forward here, instead of "The world's going to hell in a handbasket if we don't do something" [laughing].

Statements regarding the avoidance of shame, guilt, and scare tactics were primarily made by the administrator and librarian at Rolling Hills Elementary, however, framing a positive experience for students in relation to topics of global sustainability challenges was observed by all educators interviewed at Rolling Hills.

Expression of Sustainability Beliefs

These beliefs about sustainability are communicated in how teachers' carry out and make room for sustainability topics during day-to-day instruction. Sometimes these beliefs were expressed through intentional planning and integration of sustainability content into the formal curricula and other times these beliefs surfaced during teachable moments. Nonetheless, the source of these expressions were teachers' passions, experiences (travels, childhood), and significant life events.

Teachable Moments. Ms. Willow, a second-grade teacher, though overwhelmed and unimpressed by a new reading program, discussed how she still found ways to incorporate her passions into the conversations surrounding a text to liven up the conversation and incorporate a sustainability or global component that might have otherwise been lacking. For example, while reading a passage on Norway, Ms. Willow referred to her own travels and experiences of their culture of sustainability. Ms. Willow's love for the outdoors, animals, and sustainable practices is clearly reflected in her teaching and does not remain as an entity outside of her classroom. The following statement reflects her intention on bringing her passions for sustainability into the classroom: "I love to be outside. I mean, that's like all my hobbies and everything outside. I want to bring that into the classroom." Looking at how other countries perceive and implement sustainability practices is just one way that teachers have capitalized on the intersection of global and sustainability education.

Approaches to Planning. Although when one lives and breathes sustainability there is likely to be an unconscious expression of these beliefs, it is important to note the intentional sustainability education occurring at Rolling Hills Elementary. The educators interviewed at

Rolling Hills expressed the importance of literature and experiential learning in integrating sustainability topics into the classroom.

Using Literature. When asked about their planning process, Ms. Maple mentioned that she and Ms. Sycamore often start the planning process with a book:

> So, most of our research in our study is always starting with some kind of children's book. We might say, "Yeah, we wanna talk about pollution in oceans." And so, we'll try and start by finding a book. We can usually find a good book. So, we always try and find a book to start off with that really speaks to us and then we kind of go from there with our planning.

Other teachers reiterated the importance of literature. For example, Ms. Sycamore described her use of *Here Comes the Garbage Barge* written by Jonah Winter, which clearly links global and sustainability topics as it describes one town's effort to get rid of their garbage by sending it down the eastern coast and into Latin America only to find that no one would take their trash. Such a text highlights the global impact that irresponsible consumption and production can have not only on one's local community but the global community and provides a lesson on being preventative rather than reactive in dealing with our consumption patterns, something that Ms. Sycamore is constantly reiterating to her students as she encourages them to not just recycle plastics but ***refuse plastics.***

During a field visit, Ms. Willow shared her global literacy station, which also had many sustainability ties. In her interview, she described Peter Menzel's (1995) book, *Material World: A Global Family Portrait* where she stated: "He went around and everybody...different places, they took all of their possessions and put them outside of their house so you can see food and toys." Much like *The Garbage Barge* (Winter, 2010), this text provides great insight into

consumption and production patterns around the world, further highlighting the intersection of global and sustainability education.

While starting with a book might seem like a backwards approach to planning given our standards-focused educational system, such a strategy may be the best approach to attending to the complexity of global-sustainability challenges, something that ESD instruction demands. In fact, the need to ***present content holistically*** was reiterated as a best practice by two teachers during their interviews. Rather than "separating it out," Ms. Sycamore emphasized the importance of "just showing" how global concepts and environmental concepts exist in the real world. In taking this approach, teachers are attending to the complexity of ESD and global education, rather than running the risk of ***oversimplifying the content***, which could further reinforce ***stereotypical thinking.*** Since children's books intend to mirror the real world, they may provide a viable avenue for starting discussions with students around our global sustainability issues (Holshouser & Medina, 2021).

Experiential Learning. Another key approach to ESD was the incorporation of hands-on learning activities to supplement the content knowledge being supplied to students. For example, in her interview, Ms. Sycamore stated:

> I, along with another teacher, had a little afterschool group called Eco Readers, and we would do hands-on experience, well hands-on activities. So, we would read a book that dealt in some way with the environment and care for the environment or sustainability, that type of thing. And we would talk about the book a little bit and then we did, we didn't want it to just be ethereal, if you will, or cognitive, you know, we wanted it to be actual, "Hey, here's how you can make a difference in the world," so we would do some hands-on stuff.

Interviews and artifact analysis revealed several experiential learning activities teachers had conducted to supplement the content knowledge they were supplying students in the classroom. Some of these activities included: releasing butterflies, packing seed packets for a butterfly highway, making seed bombs, and planting trees.

Table 12

Curriculum Level Coding Scheme for Rolling Hills

Theme	Category	Code	Sub-Code	Sub-Code
The Complementary Curriculum (Moroye, 2017)	Origin of Sustainability Beliefs	Affective Childhood Experiences		
		Adverse Personal Experiences	Companies Shirking Responsibilities	
			Cancer Diagnosis	
	Beliefs about Sustainability Ed.	Avoiding Shaming Tactics		
		Avoiding Scare Tactics		
		Fostering Student Agency		
	Expression of Sustainability Beliefs	Bringing Passions to the Classroom		
		Bringing Travels to the Classroom		
		Teachable Moments		
		Holistic Learning Experiences	Providing Cognitive Information or Providing Content Knowledge	Learning about Pollinators
				Learning about Trees
			Providing Experiences (Experiential Learning)	Releasing Butterflies
				Packing Seed Packets for Butterfly Highway
				Making Seed Bombs
				Planting Trees
		Using Literature		
		Starting with a Book		

The Campus

While teachers certainly play a large factor in how ESD implementation occurs at the classroom level, they, along with community partners, also play a large role in shaping the campus and the ***culture of sustainability*** that is developed therein (see Table 13). An interview with the administrator at Rolling Hills Elementary conveyed the small acts that contributed to this ***culture of sustainability*** in her interview. For example, she mentioned that the school has their "students all bring their own water bottles from home that are multi-use water bottles." Additionally, the students are "encourage[d] to bring their own reusable bags" when an event is taking place at the school, such as the book fair. Such acts communicate the school's commitment to ***reducing waste***, ***repurposing materials,*** and ***recycling*** across their campus. While these acts do not involve a full lesson on sustainability, such routines and structures that the school adheres to carry implicit messages to students related to sustainability. In fact, Ms. Birch from SustainableVisions, one of Rolling Hills' community partners, emphasizes the value of ***role-modeling*** sustainable practices as part of the informal curriculum in the following statement:

> Do we have to take up class time? Not really. It doesn't really need to take up so much of our time if we're ***role modeling***. If we're, you know, some of the schools don't recycle so if they recycled, you don't even really have to teach it as part of your curriculum, you're doing it. So, they're learning it.

Role-modeling largely contributed to the ***culture of sustainability*** at Rolling Hills Elementary. One primary way in which this role-modeling surfaced during the case study was related to some of the ***sustainability advocacy*** Ms. Sycamore has been involved in. As part of her after school club, Eco Readers, Ms. Sycamore taught and encouraged her students to engage in more preventative behaviors related to plastics and other unsustainable materials. Rather than reactively recycling these materials, Ms. Sycamore encouraged students to refuse plastic and other unsustainable materials altogether. However, Ms. Sycamore became frustrated when she saw hundreds of styrofoam trays being thrown out daily in the cafeteria. Such practices ran counter to what she was trying to teach her students. After realizing the cafeteria staff had little say in the products they were using, Ms. Sycamore began to advocate for a more environmentally friendly option at the local school board meeting. At the meeting, Ms. Sycamore pleaded with school board members to "help [her] not feel like a hypocrite." She went on to explain the counterproductive messaging that students were receiving at school in the following quote: "I'm talking to my students about sustainable development and how to say no in a polite way, how to refuse styrofoam. And then they go into the cafeteria, and they're handed a styrofoam tray that they throw away." Ms. Sycamore's advocacy spurred change at her local school as a cardboard alternative was purchased to replace styrofoam trays.

As the example above illustrates, role-modeling sustainable practices requires the necessary infrastructure, and this infrastructure is often met with concerns over school and district budgets. For this reason, it is important to highlight the importance of community partnerships, which, through grant writing, can help offset the initial cost and management of the infrastructure. For this reason, SustainableVisions is an influential actor that, in addition to

passionate Rolling Hills teachers, has helped shape the culture of sustainability at the campus level.

Additionally, supportive leadership, both at the school and district level, were on board with making sustainable changes. In fact, as part of a larger district-wide effort, Rolling Hills is looking forward to installing solar panels in the near future, something that their administrator eagerly signed up for when she learned of the opportunity from her district, a district that is situated within a city that largely supports green-living. Through the provision of recycling bins, a workable composting setup, and a pollinator garden, SustainableVisions has helped to transform the Rolling Hills campus with visual reminders of sustainability efforts. Yet, it is the continual use of these spaces that ultimately shape the culture of sustainability of the campus. This was achieved through the devotion of a few passionate teachers who engage in ***role-modeling, leading by example,*** and ***sustainability advocacy*** in and outside of the school building.

Though teachers at Rolling Hills have made great strides in shaping a ***culture of sustainability*** at their school, interviews with teachers show that keeping this culture of sustainability going has been difficult during the Covid-19 pandemic which has placed increased demands on teachers. Additionally, differing staff mentalities related to sustainable living persist among school staff. Yet, the impact of a few teachers radiates throughout the Rolling Hills campus. As Covid-19 has led to increased waste and shortages that have caused their school to ***revert back to old ways,*** many of these teachers cannot escape the ***burden they feel*** to continue the work, thereby influencing them to ***pull extra weight*** in order to see the change they so desire on their campus. Amid all the extra waste being produced in cafeterias due to the Covid-19 pandemic, you will still find these teachers going above and beyond the call of duty in order to

reach for a more sustainable future. This can be seen as one teacher and an assistant work together to collect the plastic packaging being used in cafeterias: “I know in third grade the assistant and we've started little baggy collections and we're taking those baggies to the supermarkets that will recycle those bags.”

Table 13

Campus and Community Level Coding Scheme for Rolling Hills

Theme	Category	Code	Sub-Code
Culture of Sustainability	Routines and Structures	Bringing in Reusable Bags	
		Bringing in Water Bottles	
		Recycling	
		Reducing Waste	
		Repurposing Materials	
	Infrastructure	Compost Bins	
		Pollinator Garden	
		Solar Panels	
		Water-Bottle Refilling Stations	
	Teacher Agency	Role Modeling	
		Leading By Example	Differing Staff Mentalities
			Resistance
		Pulling Extra Weight	
		Advocacy	Within School Advocacy
			Outside School Advocacy
Campus to Community (Outreach)		Carrying Out Service Projects	
		Encouraging families	
		Community Involvement	
		Providing Cognitive Information	

Community Partners (In-Reach)	Holistic Outlook	Simplifying the Process
		Knowing Your Audience
		Knowing your Partner
		Appealing to the Affective
		Becoming Invested
	Benefits of Partnership	Managing Materials
		Mutual Benefits
		Planning Together
		Providing Financial Resources

The Community

SustainableVisions, a non-profit organization located in the surrounding city, has made a significant impact on Rolling Hills Elementary as they carry out their visions of both global and sustainability education. At the time of its origination 49 years ago, SustainableVisions' mission was to beautify the surrounding city. Today, the non-profit organization focuses on three areas of environmental sustainability: waste reduction, native pollinators, and trees. While education has always been at the core of SustainableVisions, their education programs have grown over time and an increased emphasis has been placed on motivating local people to take action in the community. While SustainableVisions has developed partnerships with several schools, Ms. Birch, the Education Director at SustainableVisions, was happy to share about her unique partnership with a Global Ready elementary school and the unique opportunities this designation has afforded sustainability education at Rolling Hills Elementary.

It would be difficult to talk about the partnership existing between Rolling Hills and SustainableVisions without discussing Ms. Birch's background as a Park Ranger at a variety of

National Parks across the United States. As a Park Ranger, Ms. Birch served as an interpreter, which she described as an "informal educator position" in which she was responsible for interacting with and educating, albeit informally, the many visitors that entered the park. Her experiences as a Park Ranger have significantly influenced her views on education and the capacity that a holistic view of education has for creating change. Her holistic approach to sustainability education goes far beyond simply ***providing cognitive information*** or content knowledge to park visitors, and subsequently students. In fact, she likens the provision of cognitive information to formal schooling where information is presented in a neutral way. Essential to the provision of cognitive knowledge, however, is the ability to appeal to emotions, which is the affective component of education that is often missing from ***formal education***, and often discovered in ***informal education***. She stated,

> When you're doing informal education, how you grab someone is not so much with the informational knowledge. There is some informational knowledge, but really a good interpreter, which is not always easy to come by for the park, is someone who grabs you emotionally.

To do this, Ms. Birch contends that it is essential to get to ***know your audience*** to help them understand how the cognitive information is relevant to them and influences their daily lives. By ***getting to know one's audience***, educators can find ways to ***resonate with people***, thereby ***appealing to the affective***. When this holistic approach to education is taken, Ms. Birch contended that individuals are more likely to ***become invested*** in the fight to preserve our natural wonders, which becomes evident when "they leave [the park] saying, 'I wanna preserve this for the future.'"

Cognitive information without an affective component does not encourage action on the part of the receptor. Ms. Birch's experience as an interpreter, or informal educator, significantly influences the way she views sustainability education and how she forms and carries out partnerships with surrounding schools as the Educational Director at SustainableVisions.

In fact, many of the teachers interviewed at Rolling Hills shared similar sentiments regarding this holistic outlook on global and sustainable education, likely a byproduct of their partnership with Ms. Birch at SustainableVisions. For example, Ms. Sycamore, the primary point person between SustainableVisions and other Rolling Hills educators, reiterated the need to go beyond simply providing cognitive information during her interview when discussing her approach to planning activities for her after school group, Eco Readers:

> We didn't want it to just be ethereal, if you will, or cognitive, you know, we wanted it to be actual, "Hey, here's how you can make a difference in the world." So, we would do some hands-on stuff.

In discussing her students' growing and release of monarch butterflies, Ms. Willow noted the importance of resonating with her students in the following statement pulled from a write-up on her butterfly release unit:

> We're putting something real in front of our kids…We could talk to them about it and show them pictures, but actually getting to touch it gives them another way to access that information — and motivation to access that information. It opens a lot more doors of learning to them.

Both educators' accounts aligned with Ms. Birch's holistic vision for sustainability education which ultimately goes beyond providing cognitive information, resonates with students, and appeals to the affective so they have motivation to act upon their new learning. Central to this

holistic vision to sustainability education is the provision of experiences for students via ***experiential learning*** opportunities. In this way, teachers can provide students with affective experiences with nature, similar to those that they had as a child; this is something that is becoming increasingly important in our highly technologically advanced world where children are spending less and less time outdoors. Providing these types of experiences often requires additional funds, therefore, partnerships are critical for sustaining this type of learning over time.

Case Summary

In summary, both Education for Sustainable Development and global topics were apparent at Rolling Hills Elementary School. While survey data indicated that topics related to social sustainability (i.e., poverty, food insecurity, equal rights) are most frequently taught by school staff, environmental sustainability also found its way into the curricula due to the passions of several Rolling Hills educators. Interviews, field visits, and artifact collection further illuminated approaches to Education for Sustainability at the curricular/classroom, campus, and community levels. Most notably, the data from this study provided evidence for Moroye's (2017) conception of the complementary curriculum, which allowed the incorporation of sustainability topics into the curriculum despite the formal curriculum's neglect of such topics. This incorporation at the curricular level was fueled by educators' passions for sustainability and manifested itself during teachable moments and through the use of literature. The campus of Rolling Hills elementary also communicated a vision of sustainability through the routines and structures built into the school day. While not providing explicit instruction on sustainability, role-modeling of sustainable practices was one way in which Education for Sustainable Development was occurring at the campus level. Partnerships with SustianableVisions also afforded Rolling Hills with unique opportunities related to global and sustainability education. In

fact, the educational director's unique experiences as a Park Ranger and informal educator have certainly shaped the holistic approach to education taken by Rolling Hills at both the campus and curricular levels.

CHAPTER 6: DISCUSSION

To begin the discussion, a cross-case comparison of findings (see Table 14) for Happy Meadows and Rolling Hills will be made to address RQ 4: How do two Global Ready schools compare in their conceptualization and implementation of global education, specifically ESD? Following this comparison, a discussion will ensue around Elser's et al.'s three scales of influence: 1) curriculum, 2) campus, and 3) community as well as the implications of findings at each of these levels. This will be followed by a section discussing evidence of the 3E's (engagement, enablement, and enactment) pervading each scale of influence.

Subsequently, a proposal is made for a new conceptual framework, The ESD Initiation and Implementation Framework, which seeks to merge Bronfenbrenner's (1976) and Elser et al.'s (2011) frameworks to attend to the complex nature of sustainability education and its implementation at Global Ready Schools. While Elser et al.'s framework attends specifically to sustainability education, Bronfenbrenner's Ecological Systems Theory has a broader scope allowing for its application to a myriad of educational issues in the scholarly literature. Further, while Bronfenbrenner's Ecological Systems Theory may lack nuance, Elser et al.'s Sustainable Schools Framework fails to recognize the influence of policy and socio-cultural context on sustainability education and its implementation. Through the merging of these two theoretical frameworks, the discussion seeks to provide a comprehensive look at ESD implementation that extends and complicates current ESD frameworks. Finally, the chapter will conclude with a discussion of the broader implications of these findings and potential areas for future research.

Cross-Case Comparison

Throughout the study, many similarities emerged between Happy Meadows and Rolling Hills elementary regarding their approaches to ESD within the global curriculum. While many of

these similarities will be discussed in the curriculum, campus, and community sections, overarching similarities included: 1) each school's attention to global education for all students, not just those enrolled in their dual language programs, 2) a focus on issues of social sustainability, 3) lessened attention to economic sustainability, and 4) the use of literature as an instructional tool for addressing global themes and topics.

Table 14

Within-case Themes by Research Question

Utility of Cases	Data Collection Method	Happy Meadows	Rolling Hills
Original Research Questions			
RQ 1: *How do teachers and administrators at Global Ready elementary schools perceive global education, specifically Education for Sustainable Development (ESD)?*	Survey Interviews	Over-emphasis on environmental pillar of sustainability Significant values component emphasized over content knowledge	Overemphasis on environmental pillar of sustainability Values and actions prioritized in ESD
RQ2: *What sustainability topics are covered most by teachers at Global Ready schools?*	Survey Interviews Artifact Analysis	Social Sustainability Topics	Social Sustainability Topics
RQ 3: *How is ESD incorporated within global education at Global Ready schools (i.e., examination at the curricular, campus, and community levels)?*		Top-Down Approach	Bottom-Up Approach
3a. Curriculum	Survey Interviews (Teachers) Artifact Analysis (Teachers)	Integrative/ Additive Approaches Instructional Strategies for attending to complexity (PBL, Literature)	Evidence of the Complementary Curriculum (Moroye, 2017) Presenting content holistically to attend to complexity

3b. Campus	Survey Interviews (Administrators) Artifact Analysis (School Documents)	Global education for all Enactment through service learning locally and globally	Global education for all Culture of sustainability developed through routines, infrastructure, and partnership Enactment through service learning locally and globally
3c. Community	Survey Interviews (Teachers & Administrators) Artifact Analysis	Partnerships with local and global community	High impact partnership with SustainableVisions

Case Analysis Worksheet- Adapted from Stake (2006)

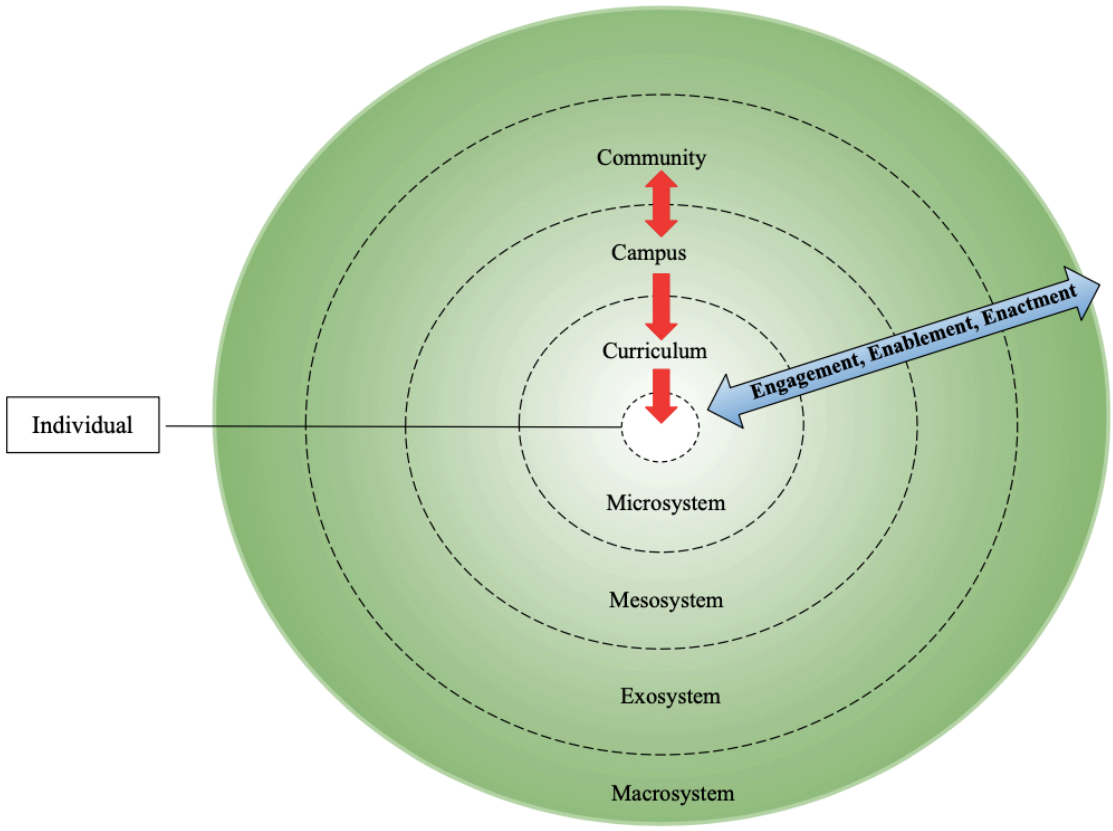
Note: This was used for individual case analysis.

Happy Meadows

Happy Meadows' approach to integrating ESD in the global curriculum could be characterized as a top-down approach (See Figure 7). When the principal at Happy Meadows noticed a need to take global learning to a deeper level at her school, she strategized ways she could introduce both teachers and students to the SDGs. While tackling the entire SDG framework is no small feat, the school has taken small steps to incorporate Goal 2 (Zero Hunger) and Goal 6 (Clean Water and Sanitation) in campus-wide projects, such as their Feed the Hungry and Water Projects. These campus-wide initiatives (meso-systems) had influence on individual classrooms (micro-systems), as many Happy Meadows educators discussed their support of these campus-wide initiatives and how they were incorporating topics of hunger and clean water in their own classrooms. Thus, Happy Meadows approach to ESD could be interpreted as top-down. Viewed through the lens of Bronfenbrenner's Ecological Framework, Happy Meadows provides a prime example of the influence that the meso-system (campus) can have on the various micro-systems (classrooms) within it.

Figure 7

Happy Meadows ESD Implementation



Note: This figure is an adaptation of Bronfenbrenner's (1976) Ecological Systems Theory and Elser et al.'s (2011) Sustainable Schools Framework.

Rolling Hills

One key difference between Happy Meadows and Rolling Hills was the origin of sustainability initiatives at each school. Interviews with Rolling Hills educators provided evidence of a bottom-up approach to sustainability implementation, where passionate teachers led the charge in spurring sustainability initiatives beyond their classroom. The agency and self-efficacy demonstrated by Rolling Hills educators reflects a "macro-level" belief system, which

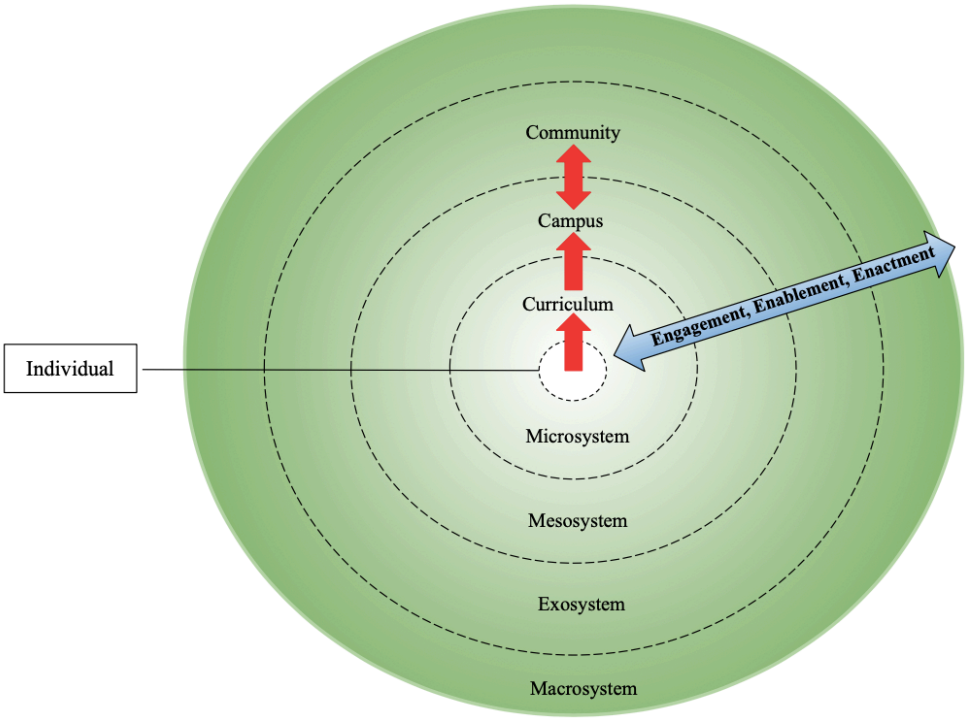
was observed by Tim and Barth (2020) in their study of 12 teachers involved in ESD at the elementary level in Germany (p. 57). According to Tim and Barth (2020), teachers falling under this classification bring their own passions for sustainability to the classroom, but also know how to "strategically approach key actors (e.g., colleagues, school principals, and external funders) to involve them into the process of implementing ESD" (p. 60). This was the case for many Rolling Hills educators, whose deep-seated passion for sustainability often expressed itself through what Moroye (2017) conceptualized as the "complementary curriculum." Interviews with Rolling Hills educators revealed that their passions for sustainability were often a product of their childhood experiences or their own adverse personal experiences that occurred because of unsustainable practices. These teachers' influence extended beyond their classrooms as they ***role modeled*** sustainable practices for students' campus-wide and aimed to influence their fellow colleagues by ***leading by example***. Additionally, these teachers typically ***pulled extra weight*** at school to facilitate and oversee campus-wide sustainability initiatives. This often involved finding and securing ***partnerships*** with local NGOs, like SustainableVisions, hosting an ***Eco Readers*** club, and engaging in ***advocacy*** work at the school level and beyond.

Additionally, it is also important to discuss the role that the socio-cultural context may play in the bottom-up approach to ESD implementation at Rolling Hills. The city in which Rolling Hills is situated places a high priority on green living and preserving natural resources, thus one cannot ignore that teachers' passions for sustainability may be due to their social positioning (See Figure 8). With this being said, schools situated in contexts that are already in support of and practicing sustainability may adopt (knowingly or unknowingly) a bottom-up approach to ESD implementation. While Elser et al. 's (2011) Sustainable Schools Framework designated the various layers at which ESD implementation occurs, it does not acknowledge

socio-cultural context or the influence that each scale of influence can have on one another. When analyzed through the lens of Bronfenbrenner's Ecological Framework, Rolling Hills educators were radiating influence beyond the boundaries of their classrooms (micro-systems) to their campus (meso-system) and community (exo-system).

Figure 8

Rolling Hills ESD Implementation



Note: This figure is an adaptation of Bronfenbrenner's (1976) Ecological Systems Theory and Elser et al.'s (2011) Sustainable Schools Framework.

The various approaches taken to implement ESD at the school level are similar to those documented by Tichnor-Wagner (2019) in her examination of two school districts' approaches to obtaining their Global Ready designation. Although studied at a district level, Tichnor-Wagner also found evidence of different approaches to initiative implementation, primarily a top-down

approach in which the district directed schools' actions and a bottom-up approach in which schools led the charge. While both approaches have the same goal, more research is needed on the benefits or drawbacks of each of these approaches, particularly regarding teacher-buy in. As more schools seek to earn their Global Ready designation and as more Global Ready schools seek to take global teaching and learning to a deeper level via ESD, research regarding effective approaches is imperative.

Curriculum

Elser et al. (2011) defined the curriculum level of the Sustainable Schools Framework as pertaining to "classroom activities, teacher/student interaction, content and class programming, professional development and training" (p. 8). As the survey data suggests, educators at Happy Meadows and Rolling Hills most frequently teach topics related to social sustainability. The heavy emphasis placed on social topics may be due to the schools' Global Ready designations. Research on ESD implementation suggests that subject areas taught often influence the pillar of sustainability that educators focus on (Borg et al., 2014). Because most elementary teachers do not work in departmentalized settings, one might conclude that other school-wide initiatives or priorities at the elementary level are likely to influence the pillar of sustainability educators teach most frequently. Social sustainability topics such as poverty, food insecurity, and equal rights are congruent with the goals of global education. Therefore, there is evidence to suggest that the intersection between topics of social sustainability and global education might be more readily integrated by teachers working in a setting where global education is prioritized. Yet, in order for students to grapple with the complexity of current sustainability challenges, it is imperative that students see the connection between all three pillars of sustainability as many of our sustainability challenges lie at the intersection of one or more pillars (Stafford-Smith, 2017).

Consistent with the literature, economic sustainability was routinely underemphasized by educators at the curricular level (Borg et al., 2014; Redmen et al., 2018; Wolff, 2017). Despite this, a few participants from both schools provided insightful connections to the role economic innovation would play in paving a more sustainable way forward. For example, when asked what words they associate with ESD two participants, one from each school, cited "innovation" and "economic innovation." References to innovation, particularly in relation to economics, were rare but telling. As new sustainability problems continue to emerge because of the Covid-19 pandemic, attention should turn towards economic sustainability.

One primary issue emerging because of the pandemic is the balancing of social sustainability issues (good health and well-being) with issues of environmental sustainability. To stop the spread of germs, many schools and businesses find themselves compromising environmental sustainability practices as food items are wrapped individually in plastic. In the larger community, restaurants have resorted to take-out which has resulted in increased styrofoam waste. During her interview, Ms. Maple expressed concern over students who started school at the beginning of the pandemic. For these students, these unsustainable practices are all they have ever known. In her interview, she cited the need to get creative with solutions:

> I hope that we can get a little more advanced in our approach to maybe being more creative with our resources that we have or recycling…Some things definitely need to change if we're gonna be doing this for a few more years.

Ms. Sycamore (Rolling Hills educator) has encouraged her own students to get creative with their own solutions to reduce their footprint. In her interview, she discussed how she has encouraged students in her Eco Readers club to bring their own reusable containers to a restaurant if they know they typically have leftovers or if they want take-out. Such an approach

is creative in that it goes against the normalized practices that have become commonplace in society, especially in the wake of the pandemic. However, Ms. Birch, lead educator at SustainableVisions draws attention to the larger problem: “The biggest thing is how we allow companies to create things that are not recyclable and somehow put it on us.” Such a quote implies the importance of holding companies accountable and incorporating topics of economic sustainability into the curriculum.

While economic sustainability was not referenced as often as other forms of sustainability, the examples above demonstrate teachers’ growing attention towards economic sustainability. However, in seeking to incorporate economic sustainability into the curriculum, it must not be conflated with economic competitiveness. The “global economy” was referenced not only in interviews with State Education Agency members, but also in the Task Force on Global Education’s Final Report, *Preparing Students for the World*, which declares its mission “to move them [students] across that finish line prepared to enter college and careers and to be competitive in an increasingly globalized economy and world” (Fiske et al., 2013, p. 9). While competitiveness in a global economy is certainly an important consideration in a globalized society, it is not synonymous with economic sustainability. An overemphasis on economic competitiveness may detract from environmental and social forms of sustainability, in addition to downplaying the importance of global collaboration towards the Sustainable Development Goals.

Many of the teachers at Rolling Hills and Happy Meadows already have instructional strategies in place that will help in their delivery of economic sustainability content, such as problem-based learning and the use of literature to address global topics. Framing problem-based learning exercises around economic sustainability challenges in which students assume the role

of business-minded decision makers could be one avenue by which students are able to develop their understanding regarding how decisions made by businesses influence environmental and social forms of sustainability.

Yet, the lesser attention given to economic topics could be since many teachers did not receive instruction in economic or financial literacy in their own K-12 experience (Henning & Lucey, 2017). Not to mention the wide array of SDGs can be overwhelming to teachers. For this reason, the practice of starting with a book, reiterated by Rolling Hills educators and supported by the wide use of literature by Happy Meadows educators demonstrates the power of learning alongside students and simply starting with a good book (Holshouser & Medina, 2021). While starting with a book may seem to go against the traditional backwards design for planning, this practice may be more suitable for teaching sustainability topics. Because books mirror everyday life, teachers are less likely to oversimplify global sustainability issues, affording students to make connections between all three pillars of sustainability (Holshouser & Medina, 2021). Book choices like *Beatrice's Goat* (McBrier, 2001) or *One Hen*: *How One Small Loan Made a Difference* (Milway, 2008) take complicated topics like microloans, and make the content accessible to readers. Such learning may also spur action as students become invested and learn of ways they can give back in their own communities.

Campus and Community

While there appeared to be more of a clear distinction between the campus and the community levels at Happy Meadows, it is difficult to discuss the campus of Rolling Hills Elementary School without also looking at the community partnerships they worked to secure. Within the Sustainable Schools framework, the campus level "focus[es] on school and school district operation, including institutional values and philosophy" (Elser et al., 2011, p. 8). Thus,

ESD at the campus level might pertain to how the school grounds reflect the sustainability practices that the school professes at the curricular level. For authentic ESD implementation to occur in schools, sustainable practices must be modeled throughout the school building. This is often accomplished through the installment of Environmental Management Systems (EMS), which includes, but is not limited to, infrastructure that supports composting, recycling, reusing/repurposing, and energy efficiency (Kanyimba et al., 2014). On Rolling Hills' campus, composting bins sat outside of the cafeteria, water bottle refilling stations were installed in school hallways, a native pollinator garden had been established on school grounds, and the administrator had just signed her school up with the district to receive solar panels. These visual signals of sustainability reinforced much of the sustainability work being done at the curricular level and served as an informal curriculum. Most of this extensive infrastructure was obtained through their partnership with SustainableVisions, a non-profit organization in the surrounding community.

Elser et al. (2011) defined community as the "focus on the school's wider influence and partnerships," which could include "parent participation and influence, support from and collaboration with the business community, interaction with government and non-profits or NGOs, mutual relations with neighboring communities, etc." (p. 9). While there are many reported constraints of sustainability education at the campus levels (Kuzich et al., 2015), partnerships with the local community may play a large role in overcoming some of these barriers. The partnership existing between Rolling Hills and SustainableVisions exemplifies the reciprocal benefits that actors within a given partnership incur, which supports Moore's (2019) community partnership model. While funding for the infrastructure to support ESD is often of concern, Rolling Hills Elementary, through the hard work and dedication of several passionate

teachers, had sourced funding to cover this infrastructure through their partnership with SustainableVisions. This discovery does not rid policymakers of their responsibility in supporting sustainability work in schools, however, such a finding provides a starting place for schools in the absence of legislative support.

Yet, while partnerships may secure the funds for ESD at the campus and curricular levels, management of these systems can prove to be just as challenging (Kuzich, 2015). While Rolling Hills' partnership with SustainableVisions offset many of the typical cost constraints that most schools would encounter when securing infrastructure to support sustainable school-wide practices, the most pressing concern among educators seemed to be the management of the resources. ESD often requires hands-on, experiential learning, which often requires increased funds and the capacity to manage the needed materials. While SustainableVisions staff were often on campus supporting teachers in a myriad of ways, they could not be on campus each school day, leaving much of the management to a few passionate teachers. Thus, many Rolling Hills teachers stated the management of the infrastructure often felt like another job in and of itself. At times, passionate janitors or teaching assistants went beyond the call of duty to help manage these systems, however, consideration should be given to staffing in the future so that this type of learning can be made possible. Simply expecting teachers to handle all of this on top of their very busy schedules will not sustain sustainability education.

The 3 E's

Elser et. al's (2011) Sustainable Schools Framework highlights the 3 E's (engagement, enablement, and enactment), which are deemed "necessary stages in the process by which a member of a learning community may become a sustainability change agent" (p. 9). These stages highlight the importance of going beyond providing content knowledge (engagement), by

attending to students' values and attitudes (enablement) and developing students' agency (enactment). While engagement with sustainability content and curriculum is necessary to develop a foundational knowledge base of sustainability topics, knowledge alone will not pave the way to a more sustainable future. With this being stated, ESD is not a value-free instructional endeavor as the literature has previously suggested (Eilam & Trop, 2010; Elser et al., 2011). In the following sections, the discussion will turn towards evidence of engagement, enablement, and enactment across the curriculum, campus, and community at both school sites.

Enablement

Elser et al. (2011) defined enablement as the processes by which educators equip students "with the values, attitudes and practical capacities that are necessary to plan and implement sustainability solutions" (p. 9). Enablement requires that educators move away from the neutral territory of supplying content knowledge (engagement). It requires educators to embrace discussions about ethics, which will be necessary to shape students' values and attitudes. There was evidence of enablement at both Happy Meadows and Rolling Hills. One of the best examples comes from Ms. Goldenrod as she recounted her South American Cookie Exchange PBL Project. As students were conducting the PBL project, students recognized the need to adjust recipes due to dietary restrictions, some of which were medical and others of which were cultural. Ms. Goldenrod recounted that this allowed for a discussion that went beyond just adjusting recipes to adjusting for people. In facilitating this discussion, Ms. Goldenrod was shaping students' dispositions as global citizens, namely their consideration for others and respect for difference. The learning in this PBL activity could have stopped at adjusting recipes, however, due to Mrs. Goldenrod's belief in the long-term purpose of education she took the time to develop the values in her students that are necessary for global citizenship. These values will

no doubt last far longer than any content knowledge imparted on students during their k-12 schooling.

Currently, problem-based learning activities in elementary settings run the danger of being implemented in a value-free way. Yet, solutions to real-world problems often involve the balancing of ethical considerations, and specifically with businesses, a bottom-line. For example, CEOs must often decide whether to cut production costs or choose a more environmentally responsible method for packing their products. As was reiterated by Ms. Sycamore, Rolling Hills educator, students will one day be in the position to make these kinds of decisions. Therefore, we must consider whether current PBL activities are stopping at the engagement level or propelling students to develop the necessary values and attitudes that can then help them act in globally responsible ways. As we currently observe religious and cultural intolerance in our increasingly globalized world, Education for Sustainable Development broadens the purpose for education beyond high-stakes assessment to equip students as global citizens.

Enactment

Elser et al. defined enactment as "allowing a learner to participate in project and system design and implementation, thus participating in an active manner in problem solving for sustainability" (p. 9). Enactment occurred at both Happy Meadows and Rolling Hills through problem-based learning that often resulted in service learning. The pairing of PBL with service-learning is one way educators can address the SDGs, while developing in students the dispositions necessary to continue this work in the future. Service-learning projects served as a prime example of how educators are pushing students into action (enactment) so that they might act upon their content knowledge and the dispositions they hold as global citizens. For Happy Meadows Elementary this looked like a combination of problem-based learning with service

learning during their facilitation of the Feed the Hungry Project at the campus level. For Rolling Hills, the butterfly highway seed packing project serves as an example of enactment at the classroom level. Happy Meadows was particularly adept at serving locally and globally. Thus, the study of sustainability education at Global Ready schools provides unique insights into enactment, not just at the local level, but at the global level as well.

In a highly polarized society and in the wake of high-stakes testing, many schools may be hesitant to step into the enablement and enactment stages of Elser et al.'s Sustainable Schools Framework. This comparative case study highlighted how two schools have gone beyond content knowledge to equip students to step into their role as global citizens. Thus, findings from this comparative case study suggest that educators at both Happy Meadows and Rolling Hills do not see global education, or more specifically ESD, as a neutral endeavor. This holistic approach to education, one that values education beyond content knowledge was reiterated by SustainableVisions Education Director, Ms. Birch, whose own experience as an informal educator brought a philosophy on learning and education that extends far beyond the classroom walls. In a time where standardized test scores are highly prioritized, there is a tendency to focus on short term outcomes, yet many of the educators at both Rolling Hills and Happy Meadows have resisted the pressure to narrow what they believe to be the purpose of education. These educators remind us that their influence extends far beyond any standardized test as they cling to what they believe are the long-term purposes of education.

ESD Initiation & Implementation Framework

Happy Meadows and Rolling Hills provided evidence of ESD implementation across the curriculum, campus, and community levels of Elser et al.'s Sustainable Schools Framework. Further, the types of activities implemented across these scales of influence provide evidence of

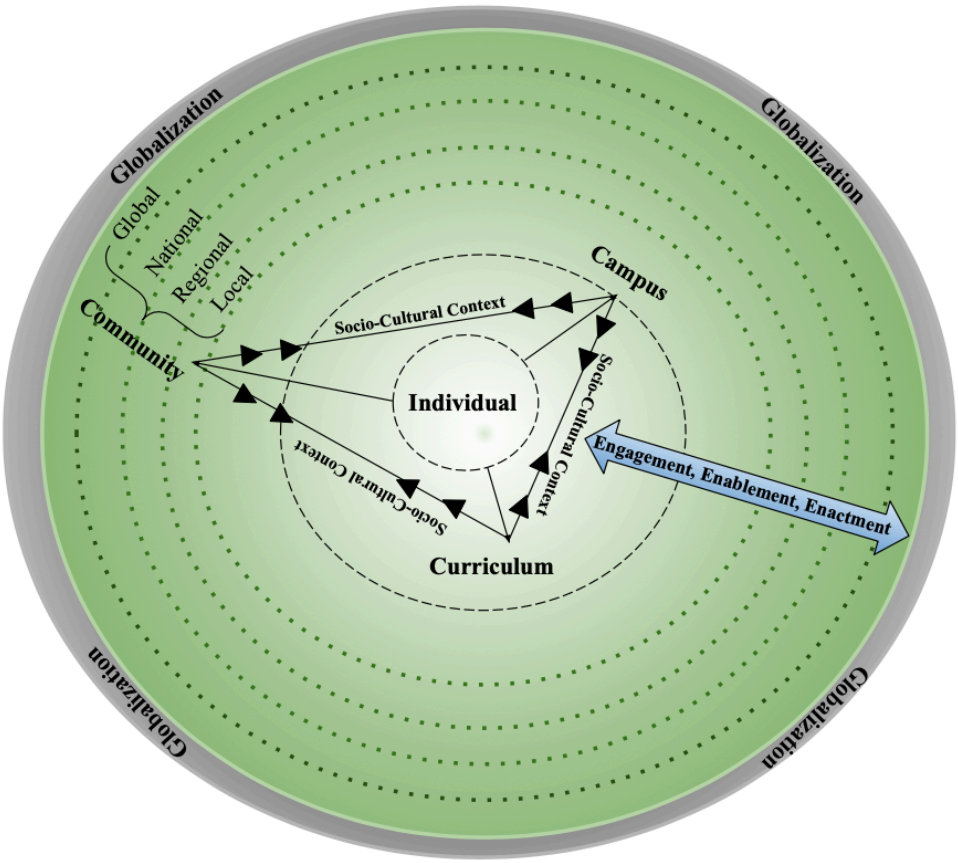
engagement, or the provision of cognitive knowledge about global or sustainability issues, in addition to enablement and enactment. Through experiential activities, PBL, and service-learning, both schools challenged students to put their global knowledge (engagement) into practice by way of acting (enactment) upon the dispositions (enablement) of global citizens in both their local and global community.

Yet, further analysis of each case provides evidence that the curriculum, campus, and community scales may not be as distinct as the Sustainable School's Framework suggests. Additionally, missing from the Sustainable Schools framework is the influence that socio-cultural context and globalization play in ESD implementation. By blending Bronfenbrenner's Ecological Systems Theory with Elser et al.'s Sustainable School Framework, a multifaceted framework emerged, capturing the complexity of ESD initiation and implementation at both Happy Meadows and Rolling Hills Elementary (See Figure 9).

The ESD Initiation and Implementation Framework contributes to the field by complicating ESD initiation and implementation through its removal of clearly demarcated scales of influence to show the influential nature of each scale. Moreover, the framework highlights the role that local context and globalization can play in the implementation of ESD. Finally, the framework expands the community scale beyond local to include regional, national, and global scales. This addition to the framework not only highlights the intersection between ESD and global education efforts, but also broadens the conception of community in a rapidly globalizing world.

Figure 9

ESD Initiation & Implementation Framework



Note: This figure is an adaptation of Bronfenbrenner's (1976) Ecological Systems Theory and Elser et al.'s (2011) Sustainable Schools Framework.

Complicating ESD Implementation

In observing and analyzing ESD initiation and implementation at Happy Meadows and Rolling Hills, it became clear that the lines between the various scales of influence (curriculum, campus, and community) were ill-defined rather than clear cut. For example, Rolling Hill's community partnership with SustainableVisions largely influenced the campus of Rolling Hills, contributing to its culture of sustainability, thus the study of sustainability at the campus level could not occur without discussion of their partnership with SustainableVisions and its provision

of some of the necessary infrastructure that was in place. Likewise, the initiation of ESD at Rolling Hills Elementary primarily took a bottom-up approach as passionate teachers orchestrated campus-wide initiatives and secured partnerships with community organizations. Such examples demonstrate the influence that each scale of influence can have on another. To show the complex interaction among levels of influence at the curriculum, campus, and community levels, the framework does not have clear boundaries. Additionally, the gradient of color extending from the center of the framework to the outer scales further complicates the model by blurring the boundaries between each scale of influence.

Socio-Cultural Context and Globalization

The ESD Initiation and Implementation Framework highlights the role that socio-cultural context and globalization may play in advancing or impeding ESD implementation at schools. In the analysis of each case, attention was given to the local and global context in which each case is situated. While the Sustainable Schools Framework does not attend to the role that socio-cultural or global contexts play in shaping the collective culture in which schools, classrooms, and teachers reside, Bronfenbrenner's Ecological Systems Theory does. Bronfenbrenner (1976) defines the macro-system as "the over-arching institutions of the culture or subculture, such as the economic, social, educational, legal, and political systems of which local micro-, meso-, and exo-systems are the concrete manifestations" (p. 6). Because the culture of sustainability is largely influenced by one's geographical location, as well as the cultural and political ideas circulating within that area, there is a need to consider cultural contexts within Sustainability Frameworks. For this reason, the ESD Initiation and Implementation Framework depicts socio-cultural context as encapsulating the scales of influence (curriculum, campus, and local community) set forth in Elser et. al's (2011) original Sustainable Schools Framework.

Socio-Cultural Context

Socio-cultural context is defined as "the overall context of learning including the range of social and cultural factors, many of which are not immediately present, including historical factors, all of which give meaning to learning" (Seel, 2012, para. 1). One interpretation of Rolling Hills' bottom-up approach to ESD implementation takes into consideration the socio-cultural context in which the campus, curriculum, and teachers were situated. The surrounding city's commitment to green living not only influences educators' beliefs about sustainability, which are then brought into the classroom, but also the policies and priorities of the school districts. For example, Ms. Elm, administrator at Rolling Hills, shared that she had just signed her school up for the installation of solar panels, something that was being offered by the district. Such an example provides evidence of the role that socio-cultural positioning can play on the curriculum, campus, and community.

Globalization

Wiggan (2012) described globalization as relating "to the increasing connection among people, arising generally from the compression of time, meaning rapidity, and space, which signifies seamless connectivity through information networking" (p. 1). During interviews with select educators, the category of globalization emerged as educators discussed global interconnectedness, mobility, and advanced technology. Given our highly technological and interconnected world, it is important to recognize the emergence and development of a global culture influencing sustainability efforts in schools. Many have documented the erosion of local cultures in the wake of increased globalization (Wiggan, 2012).

This heightened interconnectedness is favorable considering recent global initiatives related to sustainability. The establishment of the Sustainable Development Goals in 2015 aimed

to foster collaboration among nations towards a sustainable future. In fact, globalization, particularly regarding the rapid spreading of ideas, can be beneficial to the organization and collaboration towards global sustainability initiatives. For example, the SDGs are now being promoted as an instructional framework for sustainability education in schools (Holshouser & Medina, 2021). Such an example demonstrates the positive influence that globalization may have in local communities, on school campuses, and within classrooms.

Yet, globalization may also negatively influence cultures of sustainability at the national, regional, and local levels, ultimately impeding ESD across campuses and in classrooms. Given the rise of the global marketplace, poor consumption and production patterns may be modeled through increased and far-reaching advertisement, trends, etc. Wiggan (2012) contended that the media, a facilitator of globalization, "plays an important role in the presentation of different cultures and various products, and even schools, which helps to shape people's values, as well as their desires and consumption patterns" (p. 6). This can result in the erosion of regional and local cultures (Stromquist & Monkman, 2014). From these examples, globalization can influence sustainability efforts in both positive and negative ways. For this reason, it is imperative that the influence of globalization be considered when exploring the initiation and implementation of Education for Sustainable Development. In the wake of rapid globalization, researchers must explore the global culture developing around sustainability practices and how this global culture influences communities (global, national, regional, and local), campuses, the curriculum, and individuals.

Global Scale of Influence

Finally, the ESD Initiation & Implementation Framework broadens the conception of community beyond local to include regional, national, and global communities. The inclusion of

scales beyond the local community highlights the intersection of sustainability and global education, as well as the new opportunities for partnership available in a highly connected and technological society. The range of and nested appearance of the communities within the ESD Initiation and Implementation Framework highlights the glocal learning that was evident both at Happy Meadows and Rolling Hills. The advancement of technology has afforded many students and teachers the ability to expand their action to a global level as evidenced by Happy Meadows who facilitated a Feed the Hungry Project, a service-learning project conducted at the global level. Opportunities for service beyond the local community are becoming more readily available to students and teachers in our technological and interconnected world. Further, to earn the Global Ready designation evidence must be provided regarding how a school "initiates and sustains, local, national, and international community and business/industry partnerships" (NCDPI Office of Global Education, 2017, p. 4). This criteria from the Global Ready School Implementation Rubric, as well as the range of partnerships forged by Happy Meadows and Rolling Hills educators supports the expansion of the community level in the ESD Initiation and Implementation Framework. Scholarly research on ESD implementation often neglects the intersection of sustainability and global education, as sometimes they are presented as separate initiatives. In conducting this comparative case study in schools that have earned their Global Ready designation, this research shows the natural intersection of global and sustainability education.

Conclusion

As 2030 quickly approaches, research pertaining to Education for Sustainable Development and its implementation is imperative. SDG 4, Quality Education, is often noted as a high-impact SDG which has the capability of spurring progress towards the other SDGs

(Bokova & Figueres, 2015; Byker et al., 2021). As teachers plan instruction, they have the opportunity to not only engage students in topics related to sustainable development, but shape their attitudes and dispositions related to sustainability and sustainable lifestyles. Due to the wide interests of the students they teach, educators play a significant role in teaching and motivating students to make change in their own disciplines once they enter the workforce.

Policy Implications

To integrate sustainability education into the curriculum, it is imperative that teachers have a foundational understanding of sustainable development and its three pillars (environmental, economic, and social sustainability). Only by attending to the interconnectedness of these three pillars will teachers be able to equip students with the skills needed to confront the complex global-sustainability challenges that lie ahead. Ideally, this type of preparation should take place in teacher preparation programs, however, professional development for in-service teachers is also necessary. Currently, in-service teachers, seeking their individual Global Educator Digital Badge (GEDB), are given free choice in creating a professional development plan to meet the minimum hours required to earn their badge. While this allows for personalized learning, it may be worthwhile to consider the inclusion of a few core ESD courses. In doing this, all Global Ready educators are provided a foundational and holistic understanding of ESD.

Even when teachers demonstrate an understanding of and passion for ESD, maintenance of some of the ESD infrastructure remains a barrier. For example, Rolling Hills educators continually had ***to pull extra weight*** to keep the schools' infrastructure (i.e., compost bins) in operation. This finding begs the question: How can sustainability education be sustained in schools? Currently, Global Ready schools are recognized on their yearly school report card,

however, few other incentives exist for these schools beyond this recognition. With this being said, efforts should be taken to further incentivize the Global Ready designation. Granting these schools additional funds that could be put towards maintenance of school grounds or staffing may serve to not only support recruitment efforts, but also may go a long way in sustaining the work of Global Ready schools after they have earned the designation.

Research Implications

Contributions

Using case study methodology, this research puts forward a framework that pays particular attention to socio-cultural positioning and its influence on ESD implementation. Stake (2006) contended that "each case to be studied is a complex entity located in its own situation" (p. 12). By conducting a comparative case study of ESD implementation at two Global Ready schools, differences in socio-cultural context and its influence on ESD implementation at the school level were more readily identifiable. Current research on ESD is often conducted in schools having earned sustainability designations; however, given the conceptual overlap between global and sustainability education, the new designation offered by the N.C. Department of Public Instruction provided an opportune site to explore the intersections of global and sustainability initiatives. Additionally, the strategic decision to include one school that had obtained both their Global Ready and Green designations further allowed for exploration of the intersection between global and sustainability initiatives.

Scholarly research conducted on sustainability education often portrays ESD as an isolated initiative. Mentions of global education in the sustainability literature are often fleeting and discovered as a byproduct of other research questions. This has only further contributed to the siloing of curricular initiatives. Currently, sustainability education is hard to identify and

study within the United States, as Feinstein (2009) contended that it may be occurring under different names, such as civics education or environmental education.

In the United States particularly, we have reached a point where educational initiatives abound, but little research is conducted to understand their relationship to one another. The pressure to demonstrate fidelity to an over-abundance of curricular initiatives, many of which seem disconnected, has resulted in an overburdened workforce. Future research should commit to exploring the relationships among existing initiatives that have already found their way into the classroom, as currently research aimed at developing new initiatives is oversaturated. As researchers, it is our collective responsibility to seek meaning and relation among the conceptual initiatives that teachers are being asked to implement rather than leaving teachers to figure out where a new initiative fits in the broader purpose of education. Through its exploration of the intersection between sustainability education and global education, this research study has done just that.

Just as Education for Sustainable Development must afford students opportunities to grapple with the complexities of real-world sustainability issues, frameworks pertaining to the implementation of sustainability education must forgo simple explanations. Through the merging of Bronfenbrenner's Ecological Systems Theory (1976) and Elser et al.'s (2011) Sustainable Schools Framework, this comparative case study sought to complicate current ESD frameworks and in doing so contributes the ESD Initiation and Implementation Framework.

Future Research

In the name of seeking meaning among curricular initiatives, future research should explore the relationship between dual immersion programs and sustainability education. In order to earn the Global Ready designation, schools must show evidence that they have implemented

"leading-edge language instruction" (Betsill, 2022, p. 5). While both Happy Meadows and Rolling Hills had well-established dual immersion programs, the study of ESD within the dual immersion programs at these schools was beyond the scope of this study. Future research is needed to explore how ESD is integrated within a dual immersion program, in addition to how ESD is communicated in a second language. Further, it is imperative that in studying ESD, specifically in the context of dual immersion programs, that researchers investigate how ESD is bound by culture. Given that many schools may have adopted language programs as a precursor to or in lieu of the Global Ready designation, the study of affordances and constraints of ESD in these language programs may be worthwhile grounds for ESD research.

Further, future research should commit to the study of the equitable nature of global education. Currently seven out of the eight elementary schools who have earned their Global Ready Designation are non-Title 1 schools. Global education that attends to sustainability issues can provide students with a meaningful context in which they can situate academic learning. As a broader purpose for education is being discovered and promoted through the Global Ready designation, it is imperative that researchers attend to access and equity so that new opportunity gaps do not emerge as a result of these new initiatives, further compounding the opportunity gaps plaguing the field of education.

In conclusion, as effort is made to further ESD research, consideration should be given to teachers' capacity to conduct research on global teaching and learning within their own classrooms. To earn their Global Educator Digital Badge (GEDB), educators must complete a capstone project which focuses primarily on planning and implementation of a global unit. However, few opportunities for further professional development or advancement are offered to teachers after they have attained their GEDB. Consideration should be given to creating a

pathway for teachers who would like to continue their pursuit of global teaching and learning. One way this might be accomplished is through the creation of an additional, add-on badge or certification culminating in an action research project. As can be seen from the teachers participating in this study, teachers are fundamental to successful ESD initiation and implementation, therefore, they should be involved in all aspects of the field's advancement and growth.

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Appendix A: ESD Implementation Survey

Q1. **Please select your role in the study.**

- ☐ DPI Policymaker
- ☐ Administrator
- ☐ Teacher

Q2. **How many full years of teaching experience do you have?** (Note: First year teacher = 0 full years; 2nd year teacher = 1 full year; 3rd year teacher= 2 full years; Administrators, please list years of teaching experience AND years of service as an administrator)

Q3. **Please list the school you are currently affiliated with.** (Note: If you are not affiliated with a school, please put N/A)

Q4. **How many years have you been affiliated with your current school?**

Q5. **What subject area(s) do you currently teach? Select all that apply.** (Note: If you are not currently teaching, which subject area do you have the most experience teaching?)

- ☐ Math
- ☐ Language Arts
- ☐ Science
- ☐ Social Studies
- ☐ Art
- ☐ Music
- ☐ Physical Education
- ☐ Special Education
- ☐ Other (Please indicate below): _____
- ☐ N/A

Q6. **Have you been awarded your Digital Global Educator's Badge by the North Carolina Department of Public Instruction?**

- ☐ Yes
- ☐ No
- ☐ Uncertain

Q7. **In what year did you obtain your Global Educator Badge?**

Q8. **Are you currently working towards your badge?**

- ☐ Yes
- ☐ No

Q9. **Rate the extent to which you agree or disagree with the following statement: *Global Themes can be incorporated into all content areas.***

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

Q10. **Rate the extent to which you agree with the following statement: I am familiar with the Sustainable Development Goals (SDGs).**

- ☐ I have never heard of the Sustainable Development Goals (SDGs).
- ☐ I have heard of the Sustainable Development Goals (SDGs) but do not consider myself familiar with them.
- ☐ I am familiar with the Sustainable Development Goals (SDGs).
- ☐ I am very familiar with the Sustainable Development Goals (SDGs).

Q11. **What are the first two words you associate with global education?**
***Please limit your response to two words. Example: "word 1", "word 2"**

Q12. What are the first two words you associate with sustainable development (SD)?
***Please limit your response to two words. Example: "word 1", "word 2"**

Q13. **How would you define Education for Sustainable Development (ESD)?**

Q14. **Which of the social sustainability topics from the list below have you integrated into your subject area(s)?** *(Note for administrators and policymakers: If you are not currently teaching, please reflect on your time in the classroom)*

- ☐ Poverty
- ☐ Hunger
- ☐ Health and well-being
- ☐ Quality education
- ☐ Gender equality
- ☐ Reduced inequalities
- ☐ Peace, justice, and strong institutions
- ☐ Partnerships for the Goals (SDGs)
- ☐ I have not integrated social sustainability topics into my subject area(s).
- ☐ N/A

Q15. **Which of the environmental sustainability topics from the list below have you integrated into your subject area(s)?** *(Note for administrators and policymakers: If you are not currently teaching, please reflect on your time in the classroom)*

- ☐ Life on land
- ☐ Life below water
- ☐ Climate action
- ☐ Clean water and sanitation
- ☐ Affordable and clean energy
- ☐ I have not integrated environmental sustainability topics into my subject area(s).
- ☐ N/A

Q16. **Which of the economic sustainability topics from the list below have you integrated into your subject area(s)?** *(Note for administrators and policymakers: If you are not currently teaching, please reflect on your time in the classroom)*

- ☐ Decent work and economic growth
- ☐ Industry, innovation, and infrastructure
- ☐ Sustainable cities and communities
- ☐ I have not integrated economic sustainability topics into my subject area(s)
- ☐ N/A

Q17. **Considering all of the topics you checked off on questions 13, 14, and 15, which one topic do you incorporate into your instruction the most?** *(Note for Administrators and Policymakers: If you are not currently teaching, please reflect on your time in the classroom; if no classroom experience put N/A)*

Q18. **In which subject areas do you frequently incorporate sustainability topics? Check all that apply.** (Note for Administrators and Policymakers: If you are not currently teaching, please reflect on your time in the classroom or select N/A.)

- ☐ Mathematics
- ☐ Science
- ☐ Social Studies
- ☐ Reading/Language Arts
- ☐ Other (Please write your answer below)

  _____
- ☐ N/A

Q19. **Rate the extent to which you agree or disagree with the following statement: *My school is actively involved in planning collective events centered around global education*.** (Note: If you are a policymaker, please select N/A unless you are currently teaching at or affiliated with a Global Ready school)

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree
- ☐ N/A

Q20. **If you selected "agree" or "strongly agree" in response to question 15 please describe the collective events your school has planned below.**

Q21. **Has your school developed partnerships with the community in order to support the school's mission towards global education or topics of sustainability? If so, please describe these partnerships below.** (Note: If you are a policymaker, please select N/A unless you are currently teaching at or affiliated with a Global Ready school)

- ☐ Yes (Please describe below) _____
- ☐ No
- ☐ N/A

Q22. **Have you personally developed partnerships with the local community where you currently teach in order to support your teaching as it relates to global education and topics of sustainability? If so, please describe these partnerships below.** (Note: If you are a

policymaker, please select N/A unless you are currently teaching at or affiliated with a Global Ready school).

- ☐ Yes (Please describe below) _____
- ☐ No
- ☐ N/A

Appendix B: State Education Agency Interview Guide

1. Can you discuss the aim and general purpose behind the development of the Global Ready designation?
2. Can you discuss the planning process that went into designing the Global Ready designation?
3. How has the Global Education Task Force encouraged districts and schools to pursue their Global Ready designation?
4. How might attending a Global Ready school be advantageous to students?
5. How might working at a Global Ready school be advantageous to teachers and administrators?
6. What do you believe to be the purpose of global education?
7. How do you see sustainability education fitting into your vision of global education?
8. What are your hopes for the future of the Global Ready school initiative, especially as it relates to sustainability?

Appendix C: Administrator Interview Guide

1. Tell me a little bit about how you came to be the principal at [insert school name].
2. Were you an administrator at [insert school name] at the time [insert school name] was working toward their Global Ready Designation?

   If so,

   a. If so, what made you interested in pursuing the Global Ready designation for [insert school name]?
   b. Can you tell me a little about the process you and your teachers went through in pursuing the Global Ready designation?

   If not,

   c. If not, how many years had [insert school name] been a Global Ready School by the time you became the administrator?
   d. What was your first impression of [insert school name] as a Global Ready School?
   e. Can you tell me a little bit about the process of transitioning into leadership of a Global Ready School?
3. What do you believe to be the purpose of global education, specifically at [insert school name]?
4. How might attending a Global Ready school be advantageous to students at [insert school name]?
5. How might working at a Global Ready school be advantageous to teachers working at [insert school name]?

6. Can you detail some of the Global Education initiatives, events, and/or partnerships that have been conducted at [insert school name]?
7. How do you see sustainable development (or the SDGs) fitting into your vision of global education at [insert name of school]?

Appendix D: Educator Interview Guide

Building Rapport/Teaching History

1) Can you tell me a little bit about your teaching background leading up to this current point in time?
2) Were you a teacher at [insert school name] the time they began working toward their Global Ready designation?

    If so,

    - Can you tell me a little bit about the process of pursuing the Global Ready designation as a teacher at the school?

    If not,

    - What was your first impression of [insert school name] as a Global Ready School?
    - Can you tell me a little bit about the process of transitioning into your teaching role at a Global Ready school?
    - What differences have you experienced (if any) between teaching at a Global Ready school versus a school that does not have a global focus?
3) Do you have your Global Educator's Badge?
    - If so, what made you interested in pursuing your Global Educator Digital Badge?
    - Can you tell me a little bit about the process you went through to earn your badge?

Classroom/School Description and Experiences

1) If you had to describe [insert school name] to someone who had never visited your

school, how would you describe it?

2) Can you talk about your experience working at a Global Ready school?
3) Can you describe any lessons/activities/events you have planned related to global education in your classroom or for the larger school body?
4) Can you describe any lessons/activities/events you have planned related to sustainability education in your own classroom or for the larger school body?
5) How do you approach integrating topics of sustainability or global education into the content areas you teach (i.e., planning processes)?
6) Have you established any partnerships with the community in your efforts related to global education or sustainability education?
7) If you had free range over your schedule, what would be the first two sustainability topics you would cover with students and why?

Beliefs/Perceptions

1) How might attending a Global Ready school be advantageous to students?
2) What do you believe to be the purpose of global education?
3) How do you see sustainable development fitting into your vision of global education?

Appendix E: Community Partner Interview Guide

1. Can you tell me a little bit about yourself and your professional background leading up to this current point in time?
    a. How did you get into this type of work?
    b. How did you come to be interested in sustainability work?
2. Can you tell me a little bit about SustainableVisions and the work you all do?
3. Can you tell me a little bit about the history of SustainableVisions?
    a. When was it established?
    2. What was the motivation behind establishing it?

What type of partnerships has SustainableVisions established with the surrounding community? Local elementary schools?

a. Can you tell me a little bit about how this partnership is organized and facilitated?
b. Can you tell me about any specific projects that you have helped facilitate?

What are your favorite sustainability topics to discuss or teach elementary-aged students?

Why is sustainability education an important part of the curriculum?

What do you see as the biggest constraint to sustainability education in schools?

What do you believe to be the biggest sustainability issues in your surrounding area?

How do you see sustainable development (or the SDGs) fitting into your vision of global education?

Appendix F: Field Observation Protocol

The following field observation protocol will guide my observations at each school site. The questions contained in this protocol are broken down according to Elser et al.'s (2011) Sustainable Schools Framework.

Classroom

- What type of student work is hanging inside and outside of classrooms?
- What topics are covered in student work (Environmental, Economic, Social)?
- What indicators are present within the classroom that signal global education?

Campus

- Upon entering the school building, what gains the most attention?
- What types of environmental print can be found on the school walls (i.e., maps, posters, pictures, etc.)?
- What is the focus of the environmental print (Environmental, Economic, or Social)?
- Does the school have any Environmental Management Systems (EMS) in place (i.e., composting, etc.)?
- How are outdoor spaces used to communicate the global focus of the school?
- What features of the outdoor space communicate a shared vision of sustainability?
- Are their collective spaces available for outdoor teaching? If so, what do these consist of?
- How are outdoor spaces utilized by students and teachers?