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Translating sustainability: the design of a secondary charter school

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TRANSLATING SUSTAINABILITY:

THE DESIGN OF A SECONDARY CHARTER SCHOOL

by

Todd Michael Hodgkinson

An Abstract

Of a thesis submitted in partial fulfillment
of the requirements for the Doctor of
Philosophy degree in Teaching and Learning
in the Graduate College of
The University of Iowa

December 2011

Thesis Supervisor: Professor Peter Hlebowitsh

ABSTRACT

Although numerous efforts have been made to enact the concept of sustainability in schools around the world, a single, replicable model of sustainability education fails to exist. Without a replicable model to follow or adapt, educators looking to enact the concept of sustainability are left to their own devices for deciding what this orientation towards schooling might look like within the contexts of their communities and with respect tot eh normative agenda of schooling in their country. Such a process is challenging. It calls for—among other things—an examination of the core attitudes, beliefs, skills and behaviors that individuals are expected to possess as members of a sustainable society.

This descriptive case study documents how the founding members of a secondary charter school worked together with students, parents and members of the local and regional community to create a school-wide model of sustainability education. It also documents the complexities involved with enacting sustainability in a charter school setting. Field observations, document analysis and participant interviews were the primary sources of data collected in this ten-month case study. Michael Fullan's (2007) *Change Process Model* and Elliot Eisner's (1992) conceptualization of schools as *dynamic ecologies* were used as theoretical frameworks for study design, data collection and analysis. Findings reveal how the founding members of this charter schools took an adaptive-emergent approach to designing sustainability education. Findings also reveal how the opening of this charter schools was met with resistance and how this resistance led the founders to make theoretical and structural compromises.

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CERTIFICATE OF APPROVAL

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PH.D. THESIS

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This is to certify that the Ph.D. thesis of

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To my loving parents,
Duane and Fran Hodgkinson.
Thank you for supporting my dreams.

We shall never achieve harmony with the land, any more than we shall achieve absolute justice or liberty for people. In these higher aspirations, the important thing is not to achieve but to strive.

Aldo Leopold
Round River

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ABSTRACT

Although numerous efforts have been made to enact the concept of sustainability in schools around the world, a single, replicable model of sustainability education fails to exist. Without a replicable model to follow or adapt, educators looking to enact the concept of sustainability are left to their own devices for deciding what this orientation towards schooling might look like within the contexts of their communities and with respect tot eh normative agenda of schooling in their country. Such a process is challenging. It calls for—among other things—an examination of the core attitudes, beliefs, skills and behaviors that individuals are expected to possess as members of a sustainable society.

This descriptive case study documents how the founding members of a secondary charter school worked together with students, parents and members of the local and regional community to create a school-wide model of sustainability education. It also documents the complexities involved with enacting sustainability in a charter school setting. Field observations, document analysis and participant interviews were the primary sources of data collected in this ten-month case study. Michael Fullan's (2007) *Change Process Model* and Elliot Eisner's (1992) conceptualization of schools as *dynamic ecologies* were used as theoretical frameworks for study design, data collection and analysis. Findings reveal how the founding members of this charter schools took an adaptive-emergent approach to designing sustainability education. Findings also reveal how the opening of this charter schools was met with resistance and how this resistance led the founders to make theoretical and structural compromises.

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PREFACE

The purpose of this descriptive case study was to examine how the founding members of a secondary charter school worked together with students, parents and members of the local and regional community to design a school-wide model of sustainability education. Although I have always been a steadfast supporter of environmental issues, I did not become interested in sustainability education until I was graduate student at The University of Iowa—when I was asked to collaborate on a literature review for the Iowa Department of Natural Resources (DNR). At the time, the Iowa DNR was looking to create a statewide model of place-based education in Iowa middle schools, with the intention of implementing this model by 2010. Unfortunately, due to the economic recession and poor political support, this effort failed to materialize. Nevertheless, the possibility of having students from across the state of Iowa participate in place-based watershed education ignited my passion for sustainability education.

In my literature review for the DNR, I learned that—to a large extent—ecological, environmental and sustainability education have been resigned to the margins of the school curriculum in this country. I also learned that a single, replicable model of sustainability education has yet to be developed. Granted, there are scholars in the field who argue that a replicable model of sustainability education is inappropriate given its emphasis on diversity and its highly localized nature. Nevertheless, without a working model to follow or adapt, those interested in enacting sustainability education are left to develop their own approach to sustainability education in their community. Such a process is challenging. It calls for—among other things—an examination of the core attitudes, beliefs, skills and behaviors that individuals are expected to possess as members of a sustainable society.

One of my intentions for conducting this study was to document the process of enacting sustainability education, so that my documentation might act as a guide for those

interested in starting their own educational initiatives. As I illustrate in my findings, the road to opening this school was not easy. It required countless hours of thankless work and a steadfast commitment to the idea that children need to acquire particular knowledge, skills, attitudes, behaviors and beliefs if they are to live in harmony with this planet. I cannot express my gratitude to participants of this study who invited me into their lives and allowed me to document this arduous process. Some readers will be happy to know that, despite fierce public opposition—and a number of economic and structural barriers—this group of dedicated individuals succeeded in opening their charter school in the fall of 2009. The True Leaves School (pseudonym)[1] continues to thrive today.

[1] "True Leaves" is a term used by horticulturalists to describe the first "leaves" of a plant seedling. At the sign of these leaves horticulturalists know that a seedling has actively begun photosynthesis and that it can sustain itself. The pseudonym of "True Leaves" was chosen to reflect the school's mission of sustainability, as well as the school's focus on student empowerment.

CHAPTER I.

INTRODUCTION TO STUDY

Overview

In response to environmental concerns, to the perceived estrangement of humanity from the natural world and in response to fears that the carrying capacity of the earth will soon reach its limits, a growing number of educational scholars have proposed a reorientation to the school curriculum (Orr, 1994; Smith & Williams, 1998; Smith, 2002; Gruenewald, 2003; Sobel, 2004; Sterling, 2004). Termed sustainability education, this transformative approach to schooling focuses on educating students *in*, *for*, *about* and *with* the natural world (Palmer, 1998; Moroye, 2007). It also aims at helping students to acquire the knowledge, skills, values, beliefs, behaviors and attitudes they will need to become citizens in a sustainable society.

More than environmental education, sustainability education involves a conscious attempt to transform students' perceptions about the world in which they live. Its purpose is to help students see themselves as part of an inter-connected social, political and economic system bounded by ecological limitations. In addition to learning about concepts such as carrying capacity[1], cultural and biological diversity, scale, thermodynamics and state-steady economics (Orr, 1994), students are encouraged to participate in sustainability-based initiatives in and around their local community.

Although numerous attempts to enact sustainability education have been made around the world, a single, replicable model of sustainability education fails to exist. Palmer (1997) and Sterling (2004) attribute this to the fact that sustainability is a concept

[1] The carrying capacity of an environment refers to the population size it can sustain in the long term, given appropriate amounts of food, water, and other necessities.

based on diversity. McKeown (2002) recognizes this fact and claims that a single, replicable model of sustainability education would be "entirely inappropriate" (p. 12) given its highly localized nature. Without a model to follow or adapt, educators looking to enact sustainability education are left to create their own processes for what this approach to schooling should look like. Such a process is challenging. It calls for—among other things—an examination of the core knowledge, attitudes, beliefs, skills and behaviors that individuals are expected to possess as inhabitants of a sustainable world. It also calls for an assessment of how sustainability education fits within the historical and contemporary aims of education in a society.

The purpose of this descriptive case study was to examine how the founding members of a secondary charter school worked together with students, parents and members from the local and regional community to develop a school-wide model of sustainability education. By focusing on the processes involved with enacting sustainability education, it was my intent to document the complexities involved with translating the ideas associated with sustainability education into educational practice. The research questions that I used to guide this study are as follows:

> 1) How do the founding members of a secondary charter school work with members from the local and regional community to design a schoolwide approach to sustainability education?
>
> 2) What are the complexities involved with designing a schoolwide model of sustainability education?

After ten months of data collection and nearly a year of data analysis, four themes emerged in this study: *Adaptation, Emergence, Constraint and Compromise*. The first theme relates to how the founding members of this charter school *adapted* elements from

various approaches to schooling including, but not limited to: environmental education, ecological education, Expeditionary Learning, Environment as Integrating Context and the small schools movement. The second theme reflects the e*mergent* nature of the process involved with designing this school. The last two themes reflect the *constraints* encountered by this group of educators, as well as the structural and theoretical *compromises* they made in order to get the True Leaves Charter School (pseudonym) up and running[2].

Summary of Literature Review

In 2002, the United Nations convened in Johannesburg, South Africa to assess the state of environment education (EE) worldwide and to discuss the accomplishments made in the field since the landmark *Earth Summit* held a decade earlier. The report published at the conclusion of the Johannesburg summit was not a positive one. In addition to noting that "little progress" (UNESCO, 2002, p. 8) had been made with respect to the integration of EE into worldwide educational policy, the UN also noted that much of the current practice of EE fell short of what was required for ensuring a sustainable future (UNESCO, 2002). What, then, can be said of EE today? And what can be said of the approaches to education spawned by EE, such as Education for Sustainable Development and Sustainability Education?[3]

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[2] "True Leaves" is a term used by horticulturalists to describe the first "leaves" of a plant seedling. At the sign of these leaves horticulturalists know that a seedling has actively begun photosynthesis and that it can sustain itself. The pseudonym of "True Leaves" was chosen to reflect the school's mission of sustainability, as well as the school's focus on student empowerment.

[3] For sake of parsimony, I use the term "sustainability education" (SE) as a catchall to describe: Education for Sustainable Development (ESD), Environmental Education for Sustainability (EEFS), Education for a

Generally speaking, the practice of EE or sustainability education (SE) is virtually non-existent in the majority of U.S. schools today. Relegated to the margins of a curriculum focused on the teaching of basic skills, EE and similar efforts to provide students with the attitudes, behaviors, skills and knowledge they will need to become sustainable world citizens is often recognized as supplementary, if it is practiced at all (Tilbury, 1993). At best, EE/SE has been considered as a useful instructional method for teaching other, more important, subjects across the curriculum (Tilbury, 1993).

One reason for the relegation of EE/SE to the margins of the school curriculum appears to be that few teachers are sure of how to incorporate EE/SE into their teaching (Volk, 1998). This uncertainty, combined with a lack of professional development opportunities for teachers, has made it difficult for EE/SE to take root in schools (Volk, 1998).

Another reason why EE/SE has failed to become mainstream might relate to the nature of its goals (Sterling, 2004). Scholars at the 1977 Tbilisi conference in Sweden concluded that one of the aims of EE was to create "new patterns of behavior of individuals, groups and society as a whole towards the environment" (ICUN, 1977, as cited in Palmer, 1998, p. 34). Granted, most expressed goals in education tend to be lofty in their aim. Nevertheless, the goal of "creating new patterns [of human] behavior" ICUN, 1977, as cited in Palmer, 1998, p. 34) is an ambitious one. With that said, it has been suggested that EE/SE has been unable to break into the mainstream of public schooling, because its aims require a fundamental paradigm shift in the way human

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Sustainable Future (ESF) and Sustainable Education (SE). Although different from Environmental Education (EE) in philosophy and design, these approaches have their roots in EE.

beings see the world and interact with their environment (Sterling, 2004). In this respect, it makes sense that "little progress" (UNESCO, 2007, p.8) has been made in getting educators to take-up the cause and practice of EE/SE.

Yet another reason why EE/SE has failed to become mainstream relates to the fact that scholars have been unable to clearly articulate the epistemological and behavioral challenges that it presents (Sterling, 2004). This fact is best represented by the ongoing "terms debate" (p. 48) over what to call this specific approach to education—with some referring to it as Environmental Education (Palmer, 1998), yet others calling it Education for Sustainable Development (WCED, 1983), Education for Sustainability (Wheeler, 2000) and Sustainable Education (Sterling, 2004). Without a common language, it is understandable how this approach to schooling has failed to catch on with practitioners and policymakers.

As Sterling (2004) notes in his analysis of the development of sustainability education: "the field is marked by incoherence" (p. 44) and—though much progress has been made in both the theory and practice of educating students *in*, *for, about,* and *with* the environment—the evolution of EE/SE has been slowed by "its increasing inclusivity and fragmentation" (p. 51). Throughout its sixty-year history, EE/SE has incorporated a number of ideas from movements outside of education, including the fields of human rights and social justice. EE/SE has also been adopted by a number of special interest groups mainly concerned with promoting EE/SE for their own purposes. Thus, the field has been "constrained by a largely uncomprehending and resistant mainstream," (Sterling, 2004, p. 43). Of course, some scholars (e.g. Smith & Williams, 1999) view the field's primary weaknesses (its incoherence) as its greatest strength (a diversity of

opinion). Nevertheless, EE/SE has yet to become common practice in schools around the world—and one reason for this appears to be the lack of a single, coherent model of this approach to teaching and learning.

Theoretically speaking, one can conceive of EE or SE today as having four basic components: 1) Education *about* the environment; 2) Education *in* the environment; 3) Education *for* the environment; and 4) Education *with* the environment. In his 1977 essay on the complexities involved with enacting environmental education, Harvey (1977) explains the difference between the first three dimensions:

> The term environmental education can be classified into education *about* the environment, education *for* the environment, education *in* the environment, and the classes formed by the combinations *about* and *for*, *about* and *in*, and *about*, *for*, and *in*. Education *about* the environment…is concerned with providing cognitive understandings…education *for* the environment is directed toward environmental preservation…and education *in* the environment is characterized by the technique of instruction. In the *in* case, environment usually means the world outside the classroom, and in the other usages it usually refers to the biophysical and/or social context in which groups of people exist (Harvey, 1977, as cited in Disinger, 1984, p. 112.)

Palmer (1998) expanded upon Harvey's conceptual framework in her historical critique of the development of the field and argues that in addition to having an empirical component (knowledge about the environment), an ethical component (a concern for the environment) and an aesthetic component (experience in the environment), EE/SE must also tap into the formative influences of the child (see Figure 1 on p. 7).

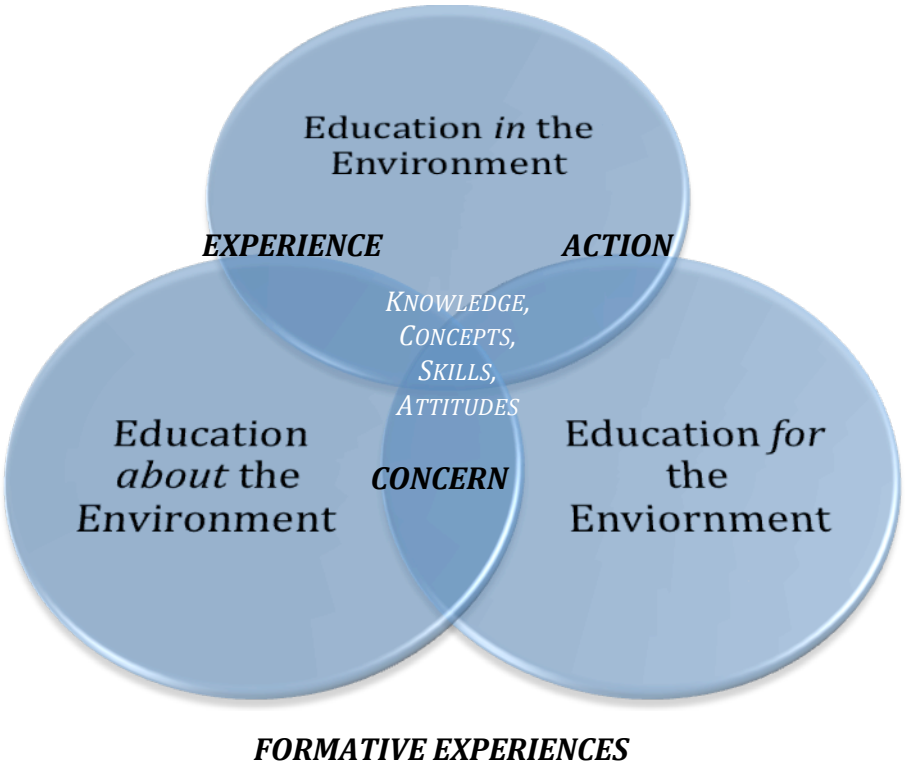

Figure 1: Approaches to Environmental Education.

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[1] Source: Palmer, J. (1998). *Environmental education in the 21st century: theory, practice, progress and promise.* London: Routledge.

Recently, Moroye (2007) added a fourth dimension to this theoretical model of EE/SE—one that she termed "education *with* the environment" (Moroye, 2007, p. 26). According to Moroye (2007), although students need to acquire the knowledge, skills, attitudes, values and behaviors necessary for them to live sustainably on this planet, students also needed to practice "living *with* the earth and all of its inhabitants" (Moroye, 2007, p. 26). This involves a conscious attempt to help students recognize that human being are a part of the ecological world rather than the exceptions to it (Moroye, 2007).

In summary, the practice of EE/SE involves educating students in four specific dimensions with the end goal of helping students to acquire the knowledge, skills, values, beliefs, behaviors and attitudes they will need to become citizens in a sustainable society. Currently, efforts to educate students *in, for, about* and *with* the environment have been relegated to the margins of the school curriculum. This may be the result of policy issues, politics, a lack of professional development opportunities, the nature of the field's aims/goals, or it may be the result of the field's inability articulate itself and present the mainstream public with a single coherent and practicable model.

Study Significance

Although much research has been conducted on the practice of environmental education (EE), little research has been conducted on efforts to enact sustainability education (SE). Furthermore, no studies have attempted to document the processes involved with designing a school-wide approach to sustainability education in a charter school setting. Having such documentation is important. For one, the documentation of *how* a group of individuals design a school-wide model of sustainability education may

benefit those interested in knowing what sustainability education is all about. Furthermore, by documenting both the processes and complexities involved with enacting sustainability education, researchers and practitioners will have a starting point for future research or work. Finally, the fact that the founding members of this school chose to enact sustainability education in a charter school setting will provide insight into whether or not charters schools are a viable option for the field.

Design and Methodology

Case study was chosen as the primary research methodology for this study, because I wanted to understand *how* the founding members of this secondary charter school developed a school-wide approach to sustainability education. This line of reasoning is consistent with Yin (1984) and Merriam's (1998) belief that one's research questions drive one's choice of methodology: "Determining when to use case study as opposed to some other research design [often] depends upon what the researcher wants to know" (Merriam, 1998, p. 32). Thus, a researcher looking to answer "how" and "why" questions might choose to employ case study over another type of research design (e.g. survey), simply because this method is better suited for answering those types of questions (Yin, 1984).

Because I didn't quite know *how* the founding members of the True Leaves charter school were going to develop their plan for educational practice—and because I was unaware of what complexities, if any, they might face—I also chose to use case study design because of its flexibility. Unlike experimental designs, which require more tightly controlled research conditions, case study is appropriate for situations when "the

boundaries between phenomenon and context are not clearly evident" (Yin, 1984, p. 23). This design is also well suited for situations when "the variables are so embedded in the situation as to be impossible to identify ahead of time" (Merriam, 1998, p. 32). Hence, because I didn't quite know exactly what I would find in my study of the opening of this charter school, I needed a research method that would allow me the flexibility to adapt my research questions, ask additional questions and cast my "net for evidence widely" (Bromley, 1986, p. 23).

According to Yin (1984), case study is also an appropriate choice of research methodology when the subject of one's interest is rare or *unique*. This is because case study allows an investigator to produce a detailed account of the phenomenon or social unit in question that can later be used as a starting point for future research (Merriam, 1998). Because the opening of the True Leaves charter school offered a *unique* opportunity for understanding *how* educators planned for sustainability education—and because no other studies have attempted to document this process—I chose this case study because it allowed me to create a "thick description" (Geertz, 1973, p. 21) of the planning process.

In total, twenty-nine individuals participated in this study. Eleven of the participants were volunteers working for the True Leaves Charter School. Eight were members of the school's founding board, members of the school's administrative staff and one was a graduate student-researcher involved with studying the school for her Master's thesis. The rest were members of the local school board or community members interested in having their child attend the school. I was introduced to a majority (n = 21) of these participants by the principal of the True Leaves Charter School, who

acted as my primary "gatekeeper" (Marshall and Rossman, 2006, p. 36) throughout this study. The only exception to this fact were the eight community members, whom I introduced myself to at planning sessions and community outreach forums.

For validity purposes, I collected multiple forms of data in this study (Yin, 1984). Semi-structured interviews were conducted with 12 research participants. Two focus group interviews were also conducted with the volunteers working for True Leaves and field notes were taken in the direct observation of administrative meetings, planning sessions and community outreach forums. Documents, including position papers written by the founding members of this school, charter documents, newspaper articles and audio-visual materials (e.g., photographs, website postings, video), were also collected for analysis.

To clarify my research purposes—and to help guide my data collection and analysis—I employed two theoretical frameworks—one grounded in the work of Michael Fullan (2007) and the other derived from Eliot Eisner (1992). This framework allowed me to conceptualize the school at the heart of this study as a plane attempting to land on the runway of implementation. It also helped me to organize the data collected into five categories (the Intentional, the Curricular, the Structural, the Pedagogical and the Evaluative). My analysis of data revealed four themes: *Adaptation, Emergence, Constraint* and *Compromise*. The first theme relates to how the founding members of this charter school *adapted* elements from various approaches to schooling including, but not limited to: environmental education, ecological education, Expeditionary Learning, Environment as Integrating Context and the small schools movement. The second theme reflects the e*mergent* nature of the process involved with designing this school. Finally,

the last two themes reflect the *constraints* placed on this group of educators while designing their school, as well as the structural and theoretical *compromises* they made in order to get their charter school up and running.

Organization of Dissertation

This dissertation is organized into five parts. In chapter one, I provide readers with an overview of this study with respect to its purposes, significance, design and methodology. In chapter two I attempt to give readers a broad overview of the development of sustainability education, from its origins in Nature Study and Environmental Education to its conceptualizations today. I also review the major research findings associated with school reform and efforts to enact environmental education and sustainability education. In chapter three, I discuss my rationale for choosing the case study method to examine how the founding members of this school worked with members from the local and regional community to create a school-wide approach to sustainability education. I also discuss my methodology, my approach to data collection and how I approached data analysis. In chapter four, I discuss the findings of this ten-month case study. Using Michael Fullan's (2007) *Change Process Model* and Elliot Einser's (1992) conceptualization of schools as ecological systems, I discuss the major themes that emerged in this study. In chapter five, I summarize the findings of this study and discuss its theoretical and practical implications.

CHAPTER II.

REVIEW OF LITERATURE

Overview

In this chapter, I provide an overview of the historical development of Environmental education (EE)—from its roots in the tradition of Nature Study to its re-conceptualization as sustainability education (SE)[1]. Within this historical critique, I discuss how recent efforts to implement education *in*, *for, about* and *with* the environment have produced similar yet disparate methods and models of teaching and learning. I then provide readers with an in-depth analysis of research on educational change and curriculum reform—focusing on research related to the implementation of environmental and sustainability education. In the final part of this chapter, I explain how this particular case study contributes to the body of knowledge on environmental and sustainability education.

The Origins of Environmental Education

It's been nearly sixty years since the term "environmental education" was first used to describe the organized effort to teach students about the natural world (Palmer, 1998)—and nearly thirty years since the mission to promote an environmentally literate and socially responsible world citizenry was first declared at the international policy level (UNESCO, 1978). This may come as a surprise to those who view the field of Environmental Education (EE) as a relatively new phenomenon and to those who might

[1] For sake of parsimony, I use the term "sustainability education" as a catchall to describe: Education for Sustainable Development (ESD), Environmental Education for Sustainability (EEFS), Education for a Sustainable Future (ESF) and Sustainable Education (SE).

be tempted to view EE as a reaction to present day concerns over global warming, climate change, and the world's dwindling supply of natural resources. Granted, the concept of sustainability and the field of EE *is* currently in the spotlight—and the need for EE has never been greater—still, the idea of educating students *in*, *for*, *about,* and *with* the environment has a long history of practice with philosophical roots that go back even further (Palmer, 1998).

Some scholars (Wheeler, 1985; Palmer, 1998) claim that the origins of EE can be found in the urban field studies work of Sir Patrick Geddes (1892) or in the late Victorian era's fascination with the natural world. Others (Orr, 1994; Sterling, 2004) suggest that its roots can be traced back to the work of Johann Goethe, Jean Jacques Rousseau, Frederic Froebel, Maria Montessori, John Dewey or any educational philosopher who put an emphasis on the learner, on learning by doing, on framing and solving life-relevant problems, and on the benefits of studying the natural world. Still others (Smith and Williams, 1998; Capra, 2005 in Stone, et. al, 2005) argue that the concept of educating younger generations about the environment and how to live well with the earth has been ongoing since the beginning of human civilization. Despite this debate over its origins[2], if one focuses on the development of the field within the past century, it is widely acknowledged that present-day EE has three primary antecedents: the movement of Nature Study, Conservation Education and the movement of Outdoor Education (Disinger, 1994).

[2] The dispute over the origin of EE is based on philosophical differences over what EE actually consists of, in theory and in practice. Thus, how one defines EE typically affects the way one describes when it began.

From Nature Study to Environmental Education

Wilbur Jackman is often credited with being the founder of the Nature Study movement in America (NAAEE, 2004). Developing from Jackman's seminal work, *Nature Study in the Common Schools* (1891), the primary goal of Nature Study was to involve students in both formal and informal learning experiences (e.g., identifying and sketching plants, observing animals in their natural habitats, etc.) in an effort to help students appreciate the beauty of the natural world (NAAEE, 2004):

> Nature Study, as a process, is meant to…educate the child in terms of his environment, to the end that his life may be fuller and richer…It trains the eye and the mind to see and to comprehend the common things of life; and the result is not directly the acquiring of science but the establishing of a living sympathy with everything that is (Hyde-Bailey, 1904, p.1).

By 1930, Jackman's Nature Study movement had blossomed worldwide. Yet, while Nature Study continued to be widely practiced across America and around the globe, a new movement in education had also begun to develop. Termed "conservation education" (NAAEE, 2004, p. 3) this second antecedent to EE was born out of the Dust Bowl and is claimed to have been a "direct response to the soil erosion and flooding disasters in the United States at that time" (NAAEE, 2004, p. 3).

The primary goal of Conservation Education was to awaken Americans to the growing degradation of the natural environment caused by overuse, deforestation and industrial pollution—with the hope that increased awareness of environmental problems would lead to positive changes in human behavior. Advocates of Conservation Education also pushed for the increased management of natural resources by local, state

and federal authorities and for the establishment of natural sanctuaries (e.g., national forests, parks and recreation areas) for public enjoyment (NAAEE, 2004).

As both Nature Study and Conservation Education continued to grow in popularity, another movement (referred to as Outdoor Education) became popular in the United States around the 1950's. In response to a public concern that urban youth were not experiencing enough direct contact with the natural world, many schools began taking outdoor field trips and overnight camping expeditions to teach students practical life skills and to help them develop a greater appreciation for the outdoors (NAAEE, 2004).

Recognized more as an approach to teaching and learning, rather than a specific content area (like Nature Study or Conservation Education), Outdoor Education soon became a vehicle for educators to teach multiple subjects across the curriculum (Adkins & Simmons, 2002). With its emphasis on giving students the opportunity to reconnect with nature and to experience the natural world with all five senses, Outdoor Education thus "provided important groundwork for the development of Environmental Education by emphasizing the use of the outdoor world [as a context for learning]" (Braus and Disinger, as cited in Archie, 1998, p. 9).

In summary, those concerned with the field of EE today should recognize that the movements of Nature Study, Conservation Education and Outdoor Education each helped to inform the current practice of EE. More specifically, EE remains to be firmly rooted in having students acquire knowledge *about* the natural world and how it functions. EE is also concerned with building a conservation ethic in students, and it continues to employ the strategy of using the environment as an integrating context for learning. Of course,

the issues that first initiated these movements (e.g., a concern for getting kids outdoors, concerns over the health of the environment) also continue to exist.

A Definition for Environmental Education

In the late 1960's, the term "environmental education" began to appear in a number of scholarly research journals and in the founding documents of non-government organizations (NGOs) interested in teaching students about the environment in order to foster their relationship with the natural world (Disinger, 1984). Initially, there was some debate over the meaning of the term and all it might encompass (Goodson, 1983 as cited in Palmer, 1998). By the mid 1970's, however, the phrase "environmental education" had become widely adopted, and it was commonly being used to describe education that focused on using the natural environment to teach students about the function of ecosystems so they could, in turn, manage those ecosystems and live well with the earth (Disinger, 1984).

Evidence of this fact can be found in one of the first definitional statements made about Environmental Education (EE)—credited to Dr. William Stapp (1969) from the University of Michigan:

> Environmental education is aimed at producing a citizenry knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution (Stapp, 1969, as cited in Hungerford et al., 1998, p. 34).

Although it emphasized having students gain knowledge about the environment, Stapp's definition was different from earlier characterizations of EE, in that it called for more than just teaching students *about* living systems: "Clearly specified were the additional

objectives of teaching and learning [about] how to deal with environmental problems, and of…purposefully developing motivation within learners to do so in an active sense," (Disinger, 1984, p. 110). For this reason, scholars often recognize the late 1960's as that point in time where the field of EE began to truly separate itself from its historical antecedents, as it moved towards more of a transformative and/or action-oriented model of education (Disinger, 1984, as cited in Palmer, 1998).

The evolution and broader adoption of the term "environmental education" continued throughout the 1970's—spurred on by the establishment of the Council for Environmental Education (CEE) in London and by the United Nation's Educational Scientific and Cultural Organization's (UNESCO's) utilization of the term at its Biosphere Conference. Yet, as the acceptance of the term EE quickly grew, so did the need for scholars to more clearly define EE with respect to the movements of Nature Study, Conservation Education, Outdoor Education and to other movements with similar goals and aspirations that were blossoming at the time such as Development Education, Urban Studies, Heritage Education and Adventure Education (Palmer, 1998; Sterling, 2004).

An example of this can be found in the definition formulated and adopted by the International Union for the Conservation of Nature and Natural Resources (IUCN) at their conference in Carson City, Nevada in 1970:

> Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and the self-formulation of a code of behavior about issues concerning environmental quality (IUCN, 1970 as cited in Palmer, 1998, p. 7).

Of note in this particular definition is the assertion that EE is meant to foster a re-examination of human values, so that students can learn to conceive of the world as a complex, integrated system.[3] Also of note is the emphasis placed on building an understanding about the relationship between human culture and the natural world—and on using EE to help foster a moral "code of behavior about [environmental] issues" (p. 7).

Each of these elements: 1) Helping students to perceive of the world as a complex, integrated system; 2) Helping students to understand the link between human culture and the natural environment; and 3) Encouraging students to develop an ethic of concern for the environment were incorporated into the larger mission of EE during the late 1970's—and each of these elements remain part-and-parcel of the majority of approaches and/or models of EE today.

The Global Development of Environmental Education

With the establishment of an initial definition for EE, the field of EE expanded globally throughout the1970's (Sterling, 2004). An example of this can be found in the United Nations Conference on the Human Environment held in Stockholm, Sweden in 1972. The Stockholm Conference can be seen as a milestone event for the field of EE, in that it both increased public awareness about EE and led to the foundation of the United Nations Environment Programme (UNEP) (which remains as the designated authority for environmental issues in the United Nations' system today). It was also the first time that

[3] This assertion would eventually become the justification for incorporating the practice of interdisciplinary study into EE (Focht and Abramson, 2009), yet it would also become the conceptual basis for several models of EE, including Education for Sustainability and Ecological/Place-Based Education.

international leaders publically recognized the vital role that education can play in solving problems and issues related to the environment (Palmer, 1998).

Shortly after the Stockholm Conference, world leaders in EE convened once again (this time in Belgrade, Yugoslavia) to discuss a global direction for the field. The 1975 Belgrade Conference was yet another landmark event for EE, largely because it produced the first inter-governmental statement on EE known as the Belgrade Charter:

> The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones (UNESCO, 1975 as cited in Palmer, 1998, p. 3).

In addition to formulating this goal statement, conference participants also developed three guiding principles for EE:

- To foster an awareness of and concern about economic, social, political and ecological inter-dependence in urban and rural areas.
- To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment.
- To create new patterns of behavior of individuals, groups and society as a whole towards the environment (UNESCO, 1975 as cited in Palmer, 1998, p. 8).

Embodying elements of Nature Study, Conservation Education, as well as ideas present in the definitional statements made by Stapp (1969), the IUCN (1971) and by participants at the Stockholm Conference (1972), the guiding principles of the Belgrade Charter (knowledge, values, skills, and attitudes) remained the sole compass for practitioners of EE throughout 70's. It wasn't until 1977—when environmental scholars met to discuss

additional goals for EE—that a more comprehensive plan for how EE might be practiced in schools was developed.

The international conference held in Tbilisi, Georgia, USSR in 1977 (Palmer 1998) is a significant event in the history of EE for two reasons: 1) It helped to increase the practice of EE worldwide; and 2) It was the first international EE conference to include both scholars *and* politicians (Palmer, 1998).

Although quite similar to the Belgrade Charter, the final report produced by participants at the Tbilisi conference "provided the blueprint for the development of environmental education in many countries around the world today" (Palmer, 1998, p. 7). This is largely because the writers of the report worked hard to clarify exactly what EE was and to give examples of how it might be practiced in schools:

> Environmental Education:
>
> - is a life-long process;
> - is inter-disciplinary;
> - is an approach to education as a whole;
> - concerns the inter-relationship and interconnectedness; between human and natural systems;
> - views the environment in its entirety including social, political; economic, technological, moral, aesthetic and spiritual aspects;
> - encourages participation in the learning experience;
> - uses a broad range of teaching and learning techniques, with stress on practical activities and first-hand experience.
> - is concerned with global dimensions, and past/present/future dimensions;
> - should be enhanced and supported by the organization and structure of the learning situation and institution as a whole;
> - encourages the development of sensitivity, awareness, understanding, critical thinking and problem-solving skills;
> - is concerned with building an environmental ethic.
>
> (Tbilisi Report, 1978, as cited in Palmer, 1998, pp. 10-11)

With its emphasis on problem solving, on making connections between like concepts and on using interdisciplinary study to understand the "interconnectedness between human and natural systems" (p. 11), the Tbilisi Report gave educators a clearer picture of what EE might look like, both inside and outside of the classroom. This was important because, prior to this report, teachers often struggled with how to translate EE theory into educational practice (Volk, 1998). Of course, educational policy and social politics still kept EE at the margins of the curriculum in most schools (Tilbury, 1993). Nevertheless, the Tbilisi report was largely successful, because it helped teachers conceive of how EE might actually be practiced in classrooms (Hungerford & Volk, 1998). Of course, the fact that world leaders were heavily involved in constructing the report also gave EE more political credence, and this opened the doorway for its increased practice in schools.

In summary, the development of an initial definition for EE combined with international declarations made at the conferences in Stockholm, Belgrade and Tbilisi had a major impact on the field of EE. Prior to these events, the field of EE was still largely rooted in the theoretical underpinnings of Nature Study, Conservation and Outdoor education—and its practice was primarily focused on having students learn *in* and/or *about* the natural world. Of course, EE still remained closely connected to these purposes; however, as the field developed globally, more of an emphasis was placed on encouraging students to become both enlightened and active participants in environmental problem solving. Thus, the concept of educating *for* the environment grew to become a vital component of EE in the 1970's. The conferences at Stockholm, Belgrade and Tbilisi also raised awareness for EE and helped to clarify how and why EE might be practiced in schools.

Environmental Education in the Late 20th Century

Throughout the latter part of the 20th Century, the theory and practice of EE continued to expand globally. To begin, four major international publications: 1) the *World Conservation Strategy* (1980); 2) *Our Common Future* (1987); 3) *Caring for the Earth* (1991); and 4) *Agenda 21* (1992) all helped to propel the field of EE in a new theoretical direction. More specifically, mounting concern over the health of the environment and over issues related to economic development helped to reorient the field toward a futures perspective (Sterling 2004) and around the concept of educating students for Sustainability (Tilbury, 1993). Of course, this shift in orientation did not occur without controversy and, to date, many EE scholars remain divided over what Education for Sustainable Development (ESD) and Education for Sustainability (EfS) actually mean. There is also considerable disagreement over whether or not EE is the same as ESD or EfS and whether or not "development" and "sustainability" are appropriate focus points for education in a free and democratic society (Jickling, 1998; Sterling, 2004; Chenrachasit, 2006). Of course, the global initiatives that took place during the latter part of the 20th century also helped to raise awareness for EE, and they helped educators to clarify how EE might be conceived of and practiced in schools (Tilbury, 1993).

From Environmental Education to Sustainability Education

The first sign of this theoretical shift in the field can be traced back to a report published by the joint partnership of the IUCN, the UNEP and (then) the World Wildlife Fund (WWF) (now known as the World Wide Fund for Nature). Working under the assumption that individuals can alter their behavior and thinking for the greater good of

humanity (when the goal is a more sustainable future), this committee issued a report called the *World Conservation Strategy* (*WCS*) which outlined their action plan for promoting fundamental changes in "human values, economies and societies" (CIESIN, 2008, p. 1). In particular, the *Strategy* placed a heavy emphasis on resource conservation, noting that conservation involved both the protection and rationale use of natural resources. It also declared that conservation was essential to both the welfare of present and future generations (CIESIN, 2008). In keeping with these ideas, the committee noted the limited carrying capacity[4] of the earth, and it called for a coordinated effort of people (and nation states) in order to protect the biological and cultural diversity of this planet (CIESIN, 2008).

Although the *Strategy* offered practitioners with little guidance in terms of how to educate for a more sustainable future, the work of the committee is important to understanding how EE eventually morphed into Education for Sustainable Development (and later Education for Sustainability). This is largely because it was the first international publication to address the vital relationship between economic development and the environment (Palmer, 1998). Noting that conservation and development were "mutually inter-dependent" (CIESIN, 2008, p. 15) and that, in order to meet the needs of future world citizens, a smarter approach to development was needed, the authors of the report coined the term "sustainable development" to describe the type of economic policy needed to preserve the planet's limited supply of natural resources, while at the same time preserving the welfare of the human condition on earth (Palmer, 1998). In short, the *Strategy* represented an important turning point in the field, because it defined the goal of

[4] The carrying capacity of an environment refers to the population size it can sustain in the long term, given appropriate amounts of food, water, and other necessities.

sustainability in the context of human development: "Being able to meet the needs of the present without compromising the ability of future generations to meet their own needs," (Our Common Future, 1987, p. 5). This definition remains to be a cornerstone of the ESD movement today, and it has served as a compass point for the movements of Education for Sustainability (EfS) and Sustainability Education (SE).

The concept of meeting the needs of the present without sacrificing the needs of future generations would surface again, in another influential report published in the late 1980's. Often referred to as the *Brundtland Report* (named after the commission that was convened by the UN to write it), *Our Common Future* (1987) is important to the history of EE largely, because it reinforced the essential message of the *World Conservation Strategy*, which stressed the importance of resource conservation through the practice of "sustainable development" (Palmer, 1998).

Advocating for the scientific management of the earth's resources, *Our Common Future* (1987) encouraged nations to recognize that, although limiting to economic growth, sustainable development was necessary for both improving the welfare of citizens and improving the quality of the natural resources (upon which the welfare of citizens is based):

> The concept of sustainable development does imply limits—not absolute limits but limitations imposed by the present state of technology and social organization on environmental recourse and by the ability of the biosphere to absorb the effects of human activities. But technology and social organization can be both managed and improved to make way for the new era of economic growth…Sustainable development is not a fixed state of harmony, but rather a process of change…We do not have to pretend that the process is easy or straightforward. Painful choices have to be made. Thus, in the final analysis, sustainable development must rest on political will (WCED, 1987, as cited in Palmer, 1998, p. 63).

Interestingly enough, the report was not well received by many in the field (Palmer, 1998). In fact, one of the primary criticisms of *Our Common Future* targeted the fact that the commission was vague in its recommendations for educational practice. Another criticism related to how the Brundtland Commission conceived of and articulated the concept of sustainable development:

> We should not assume that we can look for solutions to our problems within the framework of the current development pattern. It would be folly to think the Brundtland Commision can find solutions within the 'counter-productive framework' of governments, the United Nations, the World Bank, and so on. Because the present structures have given us disease, it is then logical that they should also provide the cure? This seems to be a limitation of this commission, because it itself stemmed from the current framework. (Mishra, 1990, as cited in Palmer, 1998. p. 65).

At the heart of Mishra's (1990) criticism was the commission's assumption that sustainability could be achieved through historically "dominant patterns of development" (p. 65), which Mishra claimed to be firmly rooted in Western socio-political and economic ideology. More specifically, Mishra (1990) and others (Shiva and Bandyopadhyay, 1987; Bowers, 1993; Orr, 1994) took issue with the unquestionable faith modern society has placed in the concept of linear progress, in the equation of progress with unlimited economic growth, in the capabilities of scientific management, in the absolute merit of private endeavor and in the intrinsic value of globalization.

Instead of continuing to work within this narrow framework of understanding, these scholars (Mishra, 1990; Shiva and Bandyopadhyay, 1987; Bowers, 1993; Orr, 1994) suggest that sustainability might better be achieved by learning to value and protect "the diverse traditions of the world, with their distinctive technological, ecological, economic, political and cultural structures (Court, 1990, as cited in Palmer, 1998, p. 65).

Furthermore, this group of EE scholars argue that society should begin to develop a more "ecological" (p. 65) frame of mind—a frame of mind in which success is no longer equated with unlimited economic gain, where technology is not seen as the only tool for solving environmental ills, where people learn to recognize that ecological, socio-political, and economic systems are interconnected and where humans learn to see themselves as part of a greater whole rather than as an exception to other life on this planet, (Misra, 1985; Shiva and Bandyopadhyay, 1987; Bowers, 1993 Orr, 1994).

In the end, despite its criticisms, the *Brundtland Report* helped to steer the field of EE firmly in the direction of *Sustainability*. This report also helped to inspire a plan for one of the largest and most influential global conferences on the environment and development, the Earth Summit (1991). Before I discuss this important event, let me first describe another report—released at the same time—that helped to sustain the movements of ESD and EfS.

In 1991, the IUCN, the UNEP and the WWF published a fully revised and restructured version of the *World Conservation Strategy* entitled *Caring for the Earth: A Strategy for Sustainable Living* (Palmer, 1998). Over two-hundred-pages in length, *Caring for the Earth* (1991) set out to endorse the key message of both the *World Conservation Strategy* and *Our Common Future*: the idea that conservation and development must go hand-in-glove. This report also supported the *Strategy's* claim that changes in human values and social systems were necessary if humanity was to "care for the Earth and build a better quality of life for all" (IUCN/UNEP/WWF, 1991, as cited in Palmer, 1998, p. 66).

In the first part of *Caring for the Earth,* nine "Principles for Sustainable Living," were outlined including: "conserving the Earth's vitality and diversity"; "minimizing the depletion of non-renewable resources"; "keeping within the Earth's carrying capacity"; and "enabling communities to care for their own environments" (IUCN/UNEP/WWF, 1991, as cited in Palmer, 1998, p. 67). In the second part of the report, recommendations for teaching about sustainable development were made, including educating students about: the limited carrying capacity of the earth; about human consumption patterns; about the relationship between family health and size and social welfare; and about the sustainable production of agriculture. The final part of the report outlined a series of target dates for the implementation of Environmental Education in sustainable development and for international plans to promote the concept of Sustainability (Palmer, 1998).

Although it helped to better articulate why Education for Sustainability Development (EfS) was important and *how* nation-states might work to translate the concept of EfS into educational practice, *Caring for the Earth* was essentially unsuccessful in getting countries from around the world to take up the its mission. According to Palmer (1998), reasons for this abound. Largely, they relate to differences in social and political ideals, as well as to difficulties associated with implementing widespread social and educational change. A more influential report was published a year later at the UN Conference held in Rio de Janeiro.

To mark the 20th anniversary of the Stockholm Conference and to help establish a "global base…to put the planet on a path towards a more secure and sustainable future," (p. 69), the United Nations hosted a second and much larger conference in Rio de Janeiro

in 1992. Called the *Earth Summit,* the conference was attended by over 120 heads of state and government, with delegates from over 170 countries (Palmer, 1998).

The centerpiece of the Rio summit was a forty-chapter document that covered topics ranging from toxic waste and desertification, to poverty, youth education and free trade (Palmer, 1998). This document, entitled *Agenda 21*, essentially outlined what nations must do in order to achieve sustainable development in the coming century including: having industrialized nations provide aid to developing countries, having exploiters of natural resources and polluters pay for their environmental sins, and having richer nations make sacrifices in their GDP for the greater good of the earth (Palmer, 1998; Sterling, 2004). *Agenda 21* also declared that, "Governments [must]…strive to update or prepare strategies aimed at integrating the environment and development as a cross-cutting issue in education at all levels within the next three years" (Agenda 21, Chapter 36, UNCED, 1992, as cited in Palmer, 1998, p. 18).

Although history has shown that *Agenda 21* had only a marginal impact on the widespread practice of EE in schools internationally, this document did have a considerable influence on shaping the theoretical direction of the field. Specifically, *Agenda 21* helped to raise several important questions for EE scholars, including: 1) Is sustainable development feasible and desirable? 2) Can the world's limited supply of natural resources be scientifically managed?; and 3) If so, who will manage them?; 4) Can individuals and societies move from a more human-centered (anthropocentric) way of thinking to a more earth-centered (ecological) way of thinking?; and 5) If so, what role should education across the world play in this transformation? (Palmer, 1998).

Agenda 21 also sparked what some have referred to as the "terms debate" in the field (Sterling, 2004). In particular, although some scholars began using the term "Education for Sustainable Development" as a synonym for "Environmental Education," others considered ESD to be quite different from EE. In his analysis of this debate, Sterling (2004) noted five general opinions presented by scholars in the field:

> 1) Those who consider EE as synonymous with ESD; 2) Those who view ESD as a component of EE; 3) Those who view EE as a component of ESD; 4) Those who wish to do away with the term ESD altogether; and 5) Those who consider ESD to be a better term than EE and believe that the latter should be dropped (p. 48).

To add to the complexity of this debate, some individuals (Wheeler, 1998) began using the term "Education for a Sustainable Future" (ESF), "Education for Sustainability" (Tilbury, 1993) and "Sustainable Education" (Sterling, 2004) in exchange for ESD, because these terms put less of an emphasis on economic development (Sterling, 2004). Still others (McKeown & Hopkins, 2003) took a more relative approach to the terms debate, arguing that it was what the field practiced that counted not what the field was called.

Bob Jickling (1992) offered one of the most interesting critiques of the term ESD in an essay he entitled *"Why I don't want my child educated for sustainable development."* Arguing that educators should hold off on educating for sustainability and/or sustainable development until a consensus had been reached over the meaning of the terms, Jickling (1992) also raised the question of whether or not it was even appropriate for teachers have such an ideological focus. In short, Jickling (1992) argued that taking such an ideological approach to schooling was limiting. Education should

open up dialogue, Jickling (1992) claimed, not limit it. In 1993, McClaren (1993) took up a similar argument when he stated that Education for Sustainable Development should not be practiced, because it promoted what he clamed to be narrow ideology (McClaren, 1993). Of course, it should be noted that both of these scholars still advocated for many of the principles embodied in the movements of Environmental education and/or Education for Sustainability; nevertheless, the concept of having sustainability as the central focus of the curriculum in schooling was the point with which Jickling (1992), McClaren (1993) and others (Jickling and Wals, 2008) disagreed.

In addition to raising some important questions for educators—and in addition to sparking a debate over the appropriate theoretical direction of the field—*Agenda 21* also impacted the way EE was practiced in schooling. More specifically, educators began to reconcile the economic, environmental and social imperatives put forth by *Agenda 21* by placing an emphasis on the teaching of: sustainable consumption, systems thinking, biodiversity, cultural heritage and intergenerational equity (Petrie, 2007). Furthermore, a long list of understandings, skills, attitudes and values soon became associated with the practice of ESD in schools:

Knowledge and Understandings

The understanding of:

- The nature and function of ecological, social, economic and political systems and how they are interrelated;
- The natural and cultural values intrinsic to the environment;
- The impact of people on environments and how the environment shapes human activities;
- The ways different cultures view the importance of sacredness in the environment;
- The role of cultural, socioeconomic and political systems in environmental decision making;

- The principles of ecologically sustainable development;
- The responsibilities and benefits of environmental citizenship, including the conservation and protection of environmental values;
- The importance of respecting and conserving indigenous knowledge and cultural heritage;
- How knowledge is uncertain and may change over time, and why we, therefore, need to exercise caution in all our interactions with the environment.

Skills and capabilities

The ability to engage in:

- Explorations of the many dimensions of the environment using all of their senses;
- Observations and recording of information, ideas, and feelings about the environment;
- Identification and assessment of environmental issues;
- Critical and creative thinking about environmental challenges and opportunities;
- Consideration and prediction of the consequences (social, cultural, economic, and ecological) of possible courses of action;
- Oral, written, and graphic communication of environmental issues and solutions to others;
- Cooperation and negotiation to resolve conflicts that arise over environmental issues; and Individual and collective action to support desirable outcomes.

Attitudes and values:

These are reflected in an appreciation and commitment to:

- Respecting and caring for life in all its diversity;
- Conserving and managing resources in ways that are fair to present and future generations;
- Building democratic societies that are just, sustainable, participatory and peaceful (Petrie, 2007)

To help students acquire this knowledge and to ensure that students developed more environmentally-friendly values, attitudes, beliefs and behaviors, educators also began incorporating the practice of interdisciplinary study, collaborative-teaching, environmental problem solving, experiential learning, and issue-based approaches to learning in their classrooms as a result of the publication of *Agenda 21* (Tilbury, 1999).

In summary, during the latter part of the 20th Century, the field of EE shifted away from its conceptualization as EE—toward more of an ideological and action-oriented approach to education rooted in the concept of sustainability (Sterling, 2004). In practice, EE still remained wedded to the primary antecedents of Nature Study (e.g., making both a physical and spiritual connections with the earth) and Conservation Education (mitigating against environmental destruction); however, as the field gravitated towards the concept of Sustainability, educators took up a more transformative and/or action-oriented agenda. The concepts of systems thinking, cultural and biological diversity, intergenerational equity and social justice became part of the theory and practice of EE at this time, and educators worked to make explicit connections between human society, the health of the environment, and economic development (Disinger, 2005). The field also struggled with the extent to which education should play in preparing students to live more sustainably on the earth.

Environmental Education Today & Beyond

In 2002, the United Nations convened in Johannesburg, South Africa to assess the state of Environment education worldwide and to discuss the accomplishments and setbacks that had occurred since the last UN summit held in Brazil a decade earlier. Unfortunately, the assessment given by the UN was not favorable. In fact, since the Earth Summit, the UN noted that "little progress" (UNESCO, 2002, p. 8) had been made with respect to the integration of EE into educational policy. It also noted that much of the current practice of EE in schools "falls short of what is required," (UNESCO, 2002,

p. 8). What, then, can be said of EE today, and what does the future hold for this approach to education?

Generally speaking, the practice of EE is largely a piecemeal effort in a majority of U.S. schools today[5]. Pushed to the margins of a curriculum primarily concerned with the teaching of basic skills, EE is often viewed as supplementary to the curriculum and, at its best, EE is considered to be a useful instructional tool for the teaching of other, more important, subjects across the curriculum (Tilbury, 1993).

One reason for this might be the fact that very few teachers are unsure of how to incorporate EE into their curriculum (Volk, 1998). This uncertainty combined with a lack of professional development opportunities for teachers has made it difficult for EE to take root in schools (Volk, 1998).

Of course, another reason why EE has had difficulty with making its way into mainstream educational policy and practice might have something to do with the idealistic quality of its educational goals (Sterling, 2004). For example, scholars at the Tbilisi conference stated that one of the aims of EE was to create "new patterns of behavior of individuals, groups and society as a whole towards the environment" (ICUN, 1977, as cited in Palmer, 1998, p. 34). Granted, most expressed goals in education tend to be lofty in their aim; however, this goal (as well as the others put forth by educators and policy makers in the field) appears to be tied to something larger—a need for change in human thinking and social behavior. With that said, perhaps EE has been unable to break into the mainstream, because its aim requires that a fundamental paradigm shift

[5] It is important to note that the theory and practice of EE is far more developed in countries around the world, such as in Canada or the United Kingdom. Perhaps, with the passage of the 2011 No Child Left Inside Act, this reality will change.

occur in the way humans "see" the world and in the way human beings interact with each other and their environment. In this respect, it makes sense that "little progress" (p.8) has been made in getting educators to practice EE in schools.

Another reason why EE has failed to permeate the boundary of schooling might relate to the fact that scholars have been unable to clearly articulate the epistemological and behavioral challenges that it presents (Sterling, 2004). This fact is best represented by the ongoing "terms debate" (p. 48) over what to call this specific approach to education—with some educators calling it "Environmental education" and others: "Education for Sustainability," "Sustainable Education" or "Education for Sustainable Development."

As Sterling (2004) notes in his analysis of the development of Sustainability education, EE is a field marked by "incoherence," (p. 44) and though much progress has been made in both the theory and practice of educating students *in*, *for, about,* and *with* the environment, the evolution of EE has been slowed by its "increasing inclusivity and fragmentation" (p. 51). What Sterling (2004) is referring to is the fact that throughout its sixty-year history EE has incorporated a number of ideas from movements outside of education, including the fields of Human Rights and Social Justice. EE has also been adopted by a number of special interest groups concerned with promoting EE for their own purposes. With that said, the field has been "constrained by a largely uncomprehending and resistant mainstream," (Sterling, 2004, p. 43). Granted, some scholars (Smith and Williams, 1999) view the field's primary weaknesses (its incoherence) as its greatest strength (a diversity of opinion). Nevertheless, EE has yet to

become common practice in schooling around the world and one reason for this might be its inability to present a single coherent model. So then, where does that leave us?

Theoretically speaking, one can conceive of EE today as having four basic dimensions: 1) Education *about* the environment; 2) Education *in* the environment; 3) Education *for* the environment; and 4) Education *with* the environment. Harvey (1977) does a nice job of differentiating between the first three dimensions:

> The term environmental education can be classified into education *about* the environment, education *for* the environment, education *in* the environment, and the classes formed by the combinations *about* and *for*, *about* and *in*, and *about*, *for*, and *in*. Education *about* the environment…is concerned with providing cognitive understandings…education *for* the environment is directed toward environmental preservation…and education *in* the environment is characterized by the technique of instruction. In the *in* case, environment usually means the world outside the classroom, and in the other usages it usually refers to the biophysical and/or social context in which groups of people exist (Harvey, 1977, as cited in Disinger, 1984, p. 112).

Palmer (1998) expands on Harvey's conceptual framework, arguing that, in addition to having an empirical component (knowledge about the environment), an ethical component (a concern for the environment) and an aesthetic component (experience in the environment), EE must also tap into the formative influences of the child (see figure 1). More specifically, Palmer (1998) claims that, in order for students to develop the knowledge, skills and attitudes they will need to be considered ecologically literate, educators need to build up the student's prior knowledge (e.g. experiences in nature, understandings of natural systems, etc.) in a meaningful way (Figure 1).

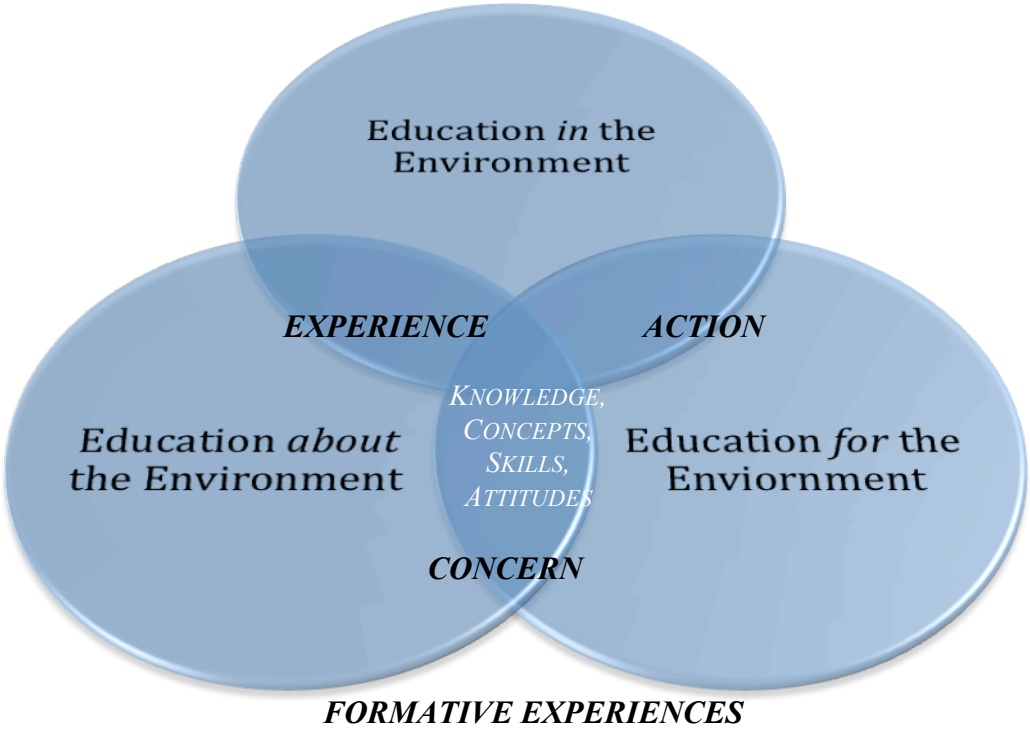

Figure 2: Approaches to Environmental Education.

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[2] Source: Palmer, J. (1998). *Environmental education in the 21st century: theory, practice, progress and promise.* London: Routledge.

Recently, Moroye (2007) added a fourth dimension to this theoretical model of EE/SE—one that she termed "education *with* the environment" (Moroye, 2007, p. 26). According to Moroye (2007), although students need to acquire the knowledge, skills, attitudes, values and behaviors necessary for them to live sustainably on this planet, students also needed to practice "living *with* the earth and all of its inhabitants" (Moroye, 2007, p. 26). This involves a conscious attempt to help students recognize that human being are a part of the ecological world rather than the exceptions to it (Moroye, 2007).

In summary, EE today has largely been pushed to the margins of the school curriculum in the United States. This may be the result of policy issues, politics, limitations in human thinking and/or it may be the result of the field's inability articulate itself and to present the mainstream public with a single coherent and practicable model and/or approach. In contrast, much progress has been made with respect to the theory of EE. In fact, most models and/or approaches to EE consist of four specific dimensions: education *in*, education *for,* education *about* and education *with* the environment.

Education *In*, *For* and *About* the Environment

To illustrate how the evolution of education *in*, *for, about,* and *with* the environment has produced similar—yet disparate—models and methods of teaching and learning, I will describe four examples of EE in the next section. The methods and models discussed were initially selected for their popularity and frequency of use in schools. Over the course of this study, however, I discovered that the True Leaves Charter School (the school at the center of this study) both intentionally and unintentionally adopted elements from each of these models and/or methods. Because of this, my overview serves not only as a description of four commonly used models to EE, it also works to set up the discussion of my research findings in chapter four.

Expeditionary Learning (EE)

Largely because it places an emphasis on using field experiences to motivate students, to build character and to engage students in life-relevant and purposeful study,

those working in the tradition of Expeditionary Learning (EL) often recognize it as a distinct model of Environmental Education (ELS Schools, 2008).

Initially developed as a training program for young merchant marines at the turn of last century, (with the purpose of teaching sailors the skills they needed to survive in life-threatening situations), EL remains dedicated to the teaching of practical life skills and knowledge. On top of this, EL also holds that teaching and learning should be "active and challenging, that character development is as important as academic development, and that good habits of mind and behavior should be taught and learned in the process of teaching academic disciplines," (ELS Schools, 2008, para 1).

Kurt Hahn, the European educator credited with developing this model, believed that engaging students in a series of intense, mini-life experiences would help to promote their self-esteem, curiosity and spirit. He also believed that EL would enable students to think critically and to solve problems. With that said, EL is often structured around community service projects and weeklong in-depth field investigations (called "expeditions") that help to promote critical thinking, the acquisition of skills and habits, academic achievement, and personal development (Expeditionary Learning Schools, 2008).

In the early 1960's, the non-profit group Outward Bound brought Hahn's model to the United States—and in the early 1990's Outward Bound opened a series of Expeditionary Learning Schools across the country (Expeditionary Learning Schools, 2008). Today, there are over 150 Expeditionary Learning Schools in America serving over 45,000 students. The learning that takes place in these schools is guided by five core practices (learning expeditions; active pedagogy; school culture; leadership and

school improvement; and structures) and ten basic principles (see Table 1).

Table 1: Ten Principles of Expeditionary Learning

1. The primacy of self discovery.
2. The having of wonderful ideas.
3. The responsibility for learning.
4. Empathy and caring.
5. Success and failure.
6. Collaboration and competition.
7. Diversity and inclusion.
8. The natural world.
9. Solitude and reflection.
10. Service and compassion.

Source: Expeditionary Learning Schools. (2009). Retrieved June 2009 from http://elschools.org/

Support for Expeditionary Learning can be found in research conducted by such third-party organizations as the RAND Corporation, the American Institutes for Research (AIR), the Center for Research in Educational Policy (CREP) and the National Staff Development Council (NSDC). Employing a variety of quantitative and qualitative research methods, researchers have discovered that this model of education improves collaborative practice between teachers and students, (RAND, 1998; NSDC, 2002), raises levels of student achievement and engagement (AIR, 1999; CREP, 2002; NSDC, 2002) and leads to a more positive and productive school culture, (RAND, 1998; AIR, 1999; CREP, 2002; NSDC, 2002). Furthermore, studies conducted on EL have shown that this model of EE helps to improve student attendance, and it helps to build a spirit of community service in students, (Expeditionary Learning Schools, 2008)

Within the context of environmental education, Expeditionary Learning can be seen as an extension of the Outdoor and Adventure education movements of the 1950's, 60's and 70's. This is because EL often takes place *in* the natural world and because this model utilizes the natural environment as a context for learning subject matter across the curriculum. EL is also recognized as a distinct model of EE, because it engages students in environmental problem solving—encouraging students to take part in community-based initiatives.

Environment as the Integrating Context (EIC)

Environment as Integrating Context (EIC) is research-based model of education developed by a cooperative of twelve U.S. states (known as the State Education and Environment Roundtable (SEER)). Currently practiced in 138 schools nationwide, this model "weaves together…best practices in education" (see Table 2), including hands-on learning, interdisciplinary study, student-centered pedagogy, collaborative teaching and issue-based curriculum design in an effort to increase student achievement (SEER, 2005).

Although EIC is sometimes recognized as a distinct model of EE (Green Heart, 2008), the focus of the EIC model isn't on learning *about* the environment. In fact, the acquisition of knowledge about natural systems and the development pro-environmental skills and behaviors often come secondary to increasing student achievement. In this respect, the EIC model is akin to Expeditionary Learning—and to educational approaches practiced during the Outdoor education movement of the 1950's—where students are given the opportunity to explore their local surroundings in an effort to understand subject matter across the curriculum.

Table 2: The EIC Model of Education

- **Integrated-Interdisciplinary Instruction** - crossing traditional subject-matter boundaries;
- **Collaborative Instruction** connecting teachers, students and the community in shared learning experiences;
- **Community-Based Investigations** offering hands-on and minds-on experiences relevant to students' lives;
- **Learner-Centered**, Constructivist Approaches building on students' interest, needs, knowledge and experience;
- **Cooperative and Independent Learning** promoting collaboration among students yet encouraging individual students to maximize their potential; and, ·
- **Using Local Natural and Community Surroundings** as the Context for instruction, learning and service.

Source: *Environment as Integrating Context.* (2005). Retrieved June 2009 from http://www.seer.org/

In addition to having students participate in community-based investigations, so they may acquire specific academic knowledge, the EIC model also promotes the use of service learning projects and real-world problem solving with students. Students attending EIC schools also have the chance to design and conduct their own learning investigations and to work on collaborative projects with their teachers and peers (SEER, 2005, para 1).

In order to utilize the EIC model, a school must become a member of the SEER Network, and then have its staff participate in a series of professional development experiences that demonstrate how to implement its "best practices" (SEER, 1998, para 1).

Schools must also agree to participate in the SEER evaluation process, which consists of responding to self-evaluation rubrics, questionnaires and, occasionally, opening itself up to on-site evaluations (SEER, 2005, para 3).

One reason for EIC's popularity amongst pro-environmental educators relates to the fact that SEER has made a conscious effort to demonstrate the model's effectiveness. In 1998, SEER published the results of a mixed-methods case study of over 40 schools using the EIC model. In their report, entitled *Closing the Achievement Gap: Using the Environment for an Integrating Context for Learning*, SEER researchers Lieberman and Hoody (1998) cite the following benefits to using the EIC model:

- Better performance on standardized measures of academic achievement in reading, writing, math, science, and social studies;
- Reduced discipline and classroom management problems;
- Increased engagement and enthusiasm for learning; and
- Greater pride and ownership in accomplishments (SEER, 2005, para.1).

In 2000, the National Environmental Education Training Foundation (NEETF) published its own report on the cognitive and behavioral effects of learning through EIC. In their report, NEETF (2000) confirmed the results of the SEER (1998) study noting that, "Students developed the ability to make connections and transfer their knowledge from familiar to unfamiliar contexts" (NEETF, 2000, p. 3) and that "students who took part in the research-based environment program successfully solved problems involving natural habitats and sharpened their higher-level thinking skills (p. 4).

In 2004, Clare Von Secker of the Chesapeake Bay Institute published the results of her comparative study of five EIC schools. Von Secker's findings were consistent with both the results of the SEER (1998) and NEETF (2000) case studies, in that she

found student engagement to be higher in classes where teachers emphasized the EIC Model (Von Secker, 2004, p. 12). Von Secker (2004) also discovered that "Students whose teachers provided more opportunities for them to participate in project-based, interdisciplinary activities reported…that what they learned in school was interesting and useful, and that they felt more empowered to make a difference in their communities" (p. 12).

Ecological Education

Starting with the assumption that learning to live sustainably on the earth is as much about cultural transformation as it about education, Smith and Williams (1999) coined the term "ecological education" to describe the type of schooling that works to "transform the way students interact with the world and one another," (p. 5).

According to Smith and Williams (1999), sustainability requires us to recognize "the embeddedness of human beings in natural systems" (p. 3). Without this recognition, human beings are more likely to view the natural world as a "set of phenomena capable of being manipulated like parts of a machine" (p. 3). In turn, this mechanistic and/or technocratic outlook works against the concept of sustainability, in that places an emphasis on approaching "issues related to the degradation of the environment as problems capable of being solved through the collection of better data, the framing of regulatory legislation, or the development of institutional procedures aimed at reducing waste" (p. 3). Of course, Smith and Williams (1999) recognize the benefits of the technocratic approach; however, they also argue that, "What is missing in most of these efforts…is a recognition of the deeper cultural transformations that must accompany the

shift to more ecologically sustainable ways of life" (Smith and Williams, 1999, p. 3). This is why Smith and Williams (1999) recommend teaching students about the interdependence of human beings and their environment, focusing on human culture and on how culture is "an outgrowth" (p. 3) of our interaction with particular regions of the earth:

> What environmental education has tended to forget and ecological education attempts to remember is this ineluctable relationship between specific biosystems and cultures, and that cultures that have demonstrated their sustainability have often developed highly specific practices well suited to the characteristics of their particular region…we need to find a way to induct our own children into an educational process that reaffirms what is being lost (p. 4).

In short, Smith and Williams (1999) argue that ecological education requires a "careful reexamination" (p. 6) of lessons learned by those "cultural traditions that have proven their sustainability" on this earth, in order to "examine our own behaviors and beliefs in their light" (p. 6).

To clarify what ecological education might look like in schools, Smith and Williams (1999) developed seven principles of ecological education that practitioners might want to consider. These include:

- The development of personal affinity with the earth through practical experiences out-of-doors and through the practice of an ethic of care.
- The grounding of learning in a sense of place through the study of knowledge possess by local elders and the investigation of surrounding natural and human communities.
- The induction of students into an experience of community that counters the press toward individualism that is dominant in contemporary social and economic experiences.
- The acquisition of practical skills needed to regenerate human and natural environments.

- The introduction to occupational alternatives that contribute to the preservation of local cultures and the natural environment.

- The preparation for work as activists able to negotiate local, regional, and national governmental structures in an effort to adopt policies that support social justice and ecological sustainability.

- The critique of cultural assumptions upon which modern industrial civilization has been built, exploring in particular how they have contributed to the exploitation of the natural world and human populations.

(Smith and Williams, 1999, pp. 6-7)

Scholars of environmental education (EE) will recognize how the ideas put forth by Smith and Williams (1999) embody many of the core concepts of EE. More specifically, like EE, ecological education intends to create an awareness of and concern for the environment by helping students "craft an ethic of sustainability… anchored in a recognition of the interdependence of all things" (Disinger, 1984, p. 16). Ecological education also supports the mission of EE by involving learners in formal and informal studies of their local bioregion. Throughout these studies, students not only develop the knowledge and skills they need to become environmentally literate world citizens (Tbilisi, 1977, as cited in Palmer, 1998), they also learn how to live sustainably in the places they inhabit (Smith and Williams, 1999). Of course, which sets ecological education apart from EE is the emphasis it places on cultural awareness and on preparing students to take up sustainability-based initiatives in their local and regional communities.

Common roots.

One example of ecological education in action can be found in the work of Joseph Kiefer and Martin Kemple (1999) who, together with teachers from across the state of Vermont, have started an educational reform initiative they call *Common Roots*.

At its outset, *Common Roots* began as a supplemental curriculum reform intended to "integrate themes of local hunger, food growing, and community service into the existing science curriculum at Main Street Middle School in Montpelier [Vermont]" (Kiefer and Kemple, as cited in Smith and Williams, 1999, p. 23). Over time, however, the program developed into a comprehensive, whole-school reform initiative meant to provide both elementary and middle-school-aged children with the opportunity to "meet the social, economic and ecological challenges of the future…by integrating practical, hands-on [community-service] projects and activities" (p. 30) into the curriculum.

To build a foundation for the implementation of this whole-school curriculum reform, Kiefer and Kemple (1999) created a fifteen-week graduate level course for teachers—to help them understand how local environments might be used to educate students about the concept of sustainability. According to Kiefer and Kemple (1999), the course asks teachers to ponder the following questions: 1) *Where are we?* 2) *Who are we?* 3) *What are we doing?* 4) *Where can we go?* 5) *How do we get there?* (p. 33-34). In their discussion of these questions teachers recreate "the story" (p. 31) of their local community, yet they also engage in meaningful conversations about commonly held cultural beliefs and practices that reinforce or challenge sustainable ways of living (Moroye, 2007). Afterwards, teachers work collaboratively with other educators from their local district to create a school-wide curriculum framework that reflects the natural

and cultural history of their own community. The result is a grade-by-grade curriculum model that satisfies both state and district content standards and links the concept of ecological sustainability with both natural and cultural heritage (Smith and Williams, 1999).

Teachers working within Kiefer and Kemple's (1999) ecological framework often employ a "near-to-far" (p. 36) approach to instruction. For example, to help students learn about the historical and cultural settlement of their bioregion, teachers might have students conduct a study of their individual homes, and then compare these findings to those discovered on a class fieldtrip to early settlements found in their community (Smith and Williams, 1999). According to Kiefer and Kemple, this "near-to-far" (p. 36) approach allows students to make life-relevant connections to their learning, yet it also "encourages them to value and treasure the place where they live" (p. 43).

To encourage "systems thinking" (p. 43) and to foster critical pedagogy, teachers working within this ecological framework also utilize the local community as a context for interdisciplinary study. For example, to develop a greater appreciation for the agricultural heritage of one's community, teachers might have their students design and build a schoolyard garden where they can grow native crops. Such a study would involve both knowledge and skills from a wide-array of disciplines; yet it would also encourage students to make connections between like ideas and to view subject matter more holistically (Smith and Williams, 1999).

Finally, teachers utilizing Kiefer and Kemple's (1999) ecological framework might place an emphasis on cultural awareness by giving students the opportunity to acquire knowledge from local elders who have learned how to live sustainably in their

bioregion. Through their interaction with local elders, students would then acquire the valuable skills (e.g. crop rotation) they would need to live sustainably. They might also learn to recognize the interrelatedness of all living things (Smith and Williams, 1999).

Environmental middle school.

Dilafruz Williams and Sarah Taylor (1999) illustrate another example of ecological education in action when they describe their account of the opening of the Environmental Middle School (EMS) in Portland, Oregon in 1995. To regain public confidence after a series of teacher layoffs—and to respond to the call from parents who asked for more choice over their child's schooling—the Portland School District began entertaining proposals from students, parents, teachers and community members for a new alternative school in the district (Williams and Taylor, 1999, as cited in Smith and Williams, 1999).

One of the proposals received by the district was submitted by a group of community members interested in providing urban youth with a more personalized school experience. More specifically, this group hoped to give adolescents living in Portland the opportunity to re-build their civic pride and to develop a greater appreciation for the local bioregion in a small school environment (Williams and Taylor, 1999, as cited by Smith and Williams, 1999). In the spring of 1995, the Portland School Board ended up selecting this community group's proposal and the following fall the Environmental Middle School (EMS) opened its doors to 150 students (Smith and Williams, 1999).

According to Sarah Taylor (1999), one of the school's founders, EMS was designed around five basic principles: 1) The promotion of ecological literacy; 2) The promotion of civic pride; 3) A more personalized approach to schooling; 4) A respect for all forms of diversity (biological, cultural, etc.); and 5) An emphasis on community outreach.

With respect to the curriculum, the school founders decided that a hands-on, inquiry-based interdisciplinary approach to schooling would help students to develop a "more holistic understanding" (p. 83) the world. Furthermore, school officials believed that involving students in community-based investigations about real-world issues would make student learning more life-relevant (Smith and Williams, 1999). According to school founders, these investigations would also give students the opportunity to contextualize environmental issues within the larger social, political and economic conditions of modern life (Williams and Taylor, 1999, as cited by Smith and Williams, 1999).

Since its inception—and primarily because EMS is not considered to be a private or charter school—it has often had to comply with the rules and regulations of the Portland School District. One of the conditions placed on EMS from the beginning was that the school had to be housed in an existing district building. Understanding this fact, the founders of EMS decided to locate their school in a section of an elementary school building located at the center of town. This decision was not arbitrary. In keeping with the school's mission, the site was selected because: 1) It was centrally located, so students from all neighborhoods could participate; 2) It was located in a neighborhood with a number of public gardens and other greenscapes, so that students could practice

outdoor education; and 3) It was located on a public bus line, so that students would "learn to value public transportation and learn the norms of public behavior" (p. 81).

To market the new school, founders of EMS sent out brochures and application materials to current fifth graders in the district—and special efforts made to reach inner-city youth and those students with an expressed interest in EE[6]. To reduce initial start-up costs, the founders of the school decided to open as a 6-7 middle school, educating 120 students, and then cap enrollment at 150 the next year when the school expanded to include eighth grade life (Williams and Taylor, 1999, as cited by Smith and Williams, 1999).

Seven teachers were hired to teach at the school and, though the founders of EMS had specific hiring criteria (e.g., teachers with an educational background in a science-related field and experience with interdisciplinary approaches to teaching), they were limited in their ability to hire teachers who met these criteria because of Portland School District hiring requirements (life (Williams and Taylor, 1999, as cited by Smith and Williams, 1999).

EMS has now been open for over a decade and although the school has moved to a new downtown location, EMS continues to remain true to its mission and to the principles upon which it was founded. For example, because school officials continued to allow flexibility within the curriculum, students and teachers in the school were able respond to emergent condition of the larger community and take up action when the city of Portland flooded in 1997 (Smith and Williams, 1999). Community service also continues to play a significant role in the school experience (with block scheduling, the

[6] Students applying to EMS had to explain their prior experiences in the natural world.

students are able to go outdoors twice every week to engage in service learning projects and community investigations)—and the school continues to partner with two local farms, the Portland Zoo, the Oregon Food Bank and several other community organizations (Sunnyside Environmental Middle School, 2009). Of course, EMS also remains dedicated to giving students a more personalized school experience. Students meet daily in the school's auditorium to sing songs and to listen to community speakers; and once a month a class of students takes on the responsibility of cooking a community meal for the entire school (Sunnyside Environmental Middle School, 2009).

Place-Based Education.

Place-based education (PBE) is an approach to education that gives students the opportunity to immerse themselves in the rich history, culture, landscape and resources of their local community—in an effort to help students develop the skills, attitudes and behaviors they will need to "sustain the cultural and ecological integrity of the places they inhabit," (Knapp and Woodhouse, 2000, p. 6).

Sometimes described as "place-conscious education" (Theobald, 1997) PBE is often recognized as an extension of such environmental and community-based educational reforms as: The Foxfire Program, The Annenburg Rural Challenge, Environment as Integrating Context (EIC) and Expeditionary Learning, (Smith, 2007; Knapp, 2008). This is because Place-Based education often involves conducting field studies, practicing cultural journalism, engaging in service learning and taking up community-based environmental challenges.

Environmental education scholar Gregory Smith (2002) argues that PBE is comprised of five particular domains. These include: 1) Having students participate in cultural and historical investigations of their community, 2) Having them practice environmental monitoring and advocacy, 3) Engaging students in real-world problem solving, 4) Having them practice entrepreneurialism, and 5) Involving students in the democratic process (Smith, 2002, as cited in Smith, 2007). Participation in these five domains helps students to recognize the "assets" (p. 191) in their community. PBE also allows students to enhance their "familiarity with what is beautiful and worth preserving in the territory they call home" (p. 192).

In his book *Place-Based Education: Connecting Classrooms and Communities* David Sobel (2005) puts forth a more concise definition of PBE:

> Place-based education is the process of using the local community and environment as a starting point to teach concepts in language arts, mathematics, social studies, science, and other subjects across the curriculum. Emphasizing hands-on, real-world learning experiences, this approach to education increases academic achievement, helps students develop stronger ties to their community, enhances students' appreciation for the natural world, and creates a heightened commitment to serving as active, contributing citizens. Community vitality and environmental quality are improved through the active engagement of local citizens, community organizations, and environmental resources in the life of the school (p. 7).

Those familiar with the history of Environmental Education, of course, will recognize elements of Outdoor education (the use of the environment to teach subjects across the curriculum), Nature Study (involving students in real-world learning experiences) and Development Education (encouraging students to become more active citizens) in Sobel's definition of PBE. What distinguishes this model from other approaches to EE; however, is that it directs the students' school experiences to local phenomena ranging from culture

and politics to environmental concerns and the economy" (Smith, 2002, p. 190). By investigating these concerns in their community, students are then able to use their understandings to access more global concerns.

Ecological and Place-Based Education: Orientation or Model?

It is important to note that both ecological and place-based education are generally considered to be *orientations* toward environmental education (EE) rather than specialized *models*. With that said, unlike Expeditionary Learning (EL) and Environment as Integrating Context (EIC), which have set principles and guidelines for instruction, ecological and place-based educational efforts tend to be more site-based and less standardized in nature.

Philosophically speaking, ecological and place-based education also appear to be more in-line with the four dimensions of environmental education that I referred to earlier. More specifically, unlike EL or EIC models—whose main focus is on using the environment to teach content across the curriculum—the practices of ecological and place-based education are meant to encourage students to learn *in* and *about* the natural world. Ecological and place-based methods of education are also meant to encourage students to ponder their relationship with the earth and to take-up sustainability initiatives in their local community (see Table 3).

Table 3: Elements of Environmental Education Found in Recent Approaches to Sustainability-Based Education

Environment as Integrating Context Model	Uses the local environs to teach content across the curriculum.	May or may not work to educate students about the natural world.	May or may not work to build an environmental ethic in students/motivate them to participate in local environmental initiatives.	May or may not work to build symbiotic relationship between students and their locale.
Expeditionary Learning Model	Uses adventure trips, or "expeditions," to teach content across the curriculum.	May or may not work to educate students about the natural world.	May or may not work to build an environmental ethic in students and/or motivate them to participate in local environmental initiatives.	May or may not work to build symbiotic relationship between students and their locale.
Ecological Education	Uses the local environs to teach content across the curriculum.	Works to educate students about the natural world.	Works to build an environmental ethic in students and motivate them to participate in local environmental initiatives.	Works to build a symbiotic relationship between students and their locale.
Place-Based Education	Uses the local environs to teach content across the curriculum.	Works to educate students about the natural world.	Works to build an environmental ethic in students and motivate them to participate in local environmental initiatives.	Works to build a symbiotic relationship between students and their locale.

Educational Change and School Reform

Prior to discussing how this particular study contributes to the body of knowledge collected on environmental and sustainability education (EE/SE), it is necessary to discuss the major findings associated with educational change and school reform in general. This is because much of our insight into how to adopt, implement and sustain school-wide curriculum reform comes from research conducted outside of the field of EE/SE. Thus, the purpose of this section is to provide readers with a brief overview of the major issues and research findings associated with adopting and implementing school reform, so that the results of my own study can be understood in greater context. Because the school at the heart of this study was opened as a charter school, I will provide a brief overview on the purposes of charter school reform, as well as on any relevant research.

Educational Change and School Reform in America

If there are two lessons to be learned from the body of research conducted on U.S. school reform this past century, it's that 1) reform is a multi-dimensional and complex process and that 2) meaningful school-wide reform is difficult to achieve (and even more difficult to sustain) (Fullan, 2007). One simply has to consider any of the major efforts to reform American public schooling since the middle of last century to understand these ideas to be true. Take, for example, the series of educational initiatives launched by the U.S. government in the late 1960's.

Fueled by political concerns over international comparisons of student achievement and ignited by a space-race with the former Soviet Union, the U.S. government advocated for a series of curricular reforms (e.g., Physical Science Study Committee Physics and BSCC Biology) to be implemented in schools across the United States (Fullan, 2007). Other reform ideas, most notably the concepts of open-plan schooling, flexible scheduling and team teaching were also promoted by the federal government at this time (Fullan, 2007); however, despite the fact that all of these efforts had the political backing of the federal government—and that a quite a bit of funding was given to states who participated in these reform ideas—their successful implementation was piecemeal at best (Elmore, 1995).

Evidence of this lack of success can be found in a wave of research findings published on school reform during the 1970's—the best example of which being Goodlad and Klein's (1970) observational study of 158 classroom teachers in 67 American public schools. In their published report, entitled *Behind the Classroom Door*, Goodlad, Klein and associates (1970) noted that, although whole-school efforts to adopt curriculum change had been supported by federal, state and local officials, there was a distinct absence of change at the classroom level. In short, although schools appeared to be adopting new curriculum programs and instructional strategies on paper, few of these reforms were making their way into actual classroom practice.

According to Elmore (1995), what the policymakers in Goodlad and Klein's (1970) study and what school reformers in the 1960's, in general, failed to realized was the:

> complex process by which local curricular decisions get made, the entrenched and institutionalized political and commercial relationships that support existing

> textbook-driven curricula, the weak incentives operating on teachers to change their practices in their daily work routines, and the extraordinary cost of making large-scale, long-standing changes of a fundamental kind in how knowledge is constructed in classrooms (Elmore, p. 15, as cited in Fullan, 2007, p. 6).

Additional research conducted on school-wide reform in the 1960's would confirm Elmore's (1995) assessment. In particular, Gross, Ciacquinta and Berstein's (1971) case study of an American public school attempting to change the role of its teachers from "learning directors" to "catalysts for learning" (Marsh, 1972, p. 274) illustrated that the school had little success in achieving their goal—this, despite there being much interest in change on both the part of school administrators and school teachers. In a summary of their findings, Gross, Ciacquinta and Bernstein (1971) claimed that to suggest that the failure to implement this organizational change was the result of resistance on the part of teachers would be too simplistic. Instead, Gross, et al. (1971) concluded that a number of structural barriers to implementation also derailed the reform effort, including: 1) a lack of clarity about the administration's expectations for teachers and 2) a lack of effort to provide teachers with the knowledge and skills they would need to carry out the reform.

Fullan and Pomfret (1977) identified similar organizational barriers to reform in their comprehensive review of research conducted on curriculum implementation. More specifically, Fullan and Pomfret (1977) identified "the characteristics of the adopting unit*"* (p. 113) (e.g, its organizational climate, demographic factors, community context, and its willingness to include all participants in the reform process) as having a profound effect on whether or not whole-school curriculum reforms were successful. This research gave validation to the theoretical assumptions first posed by Seymour Sarason (1971) in *The Culture of School Culture and the Problem of Change* when he suggested that the

norms, values, beliefs, traditions, and rituals built up over time in a school (in other words, a school's culture) often determined whether or not a reform succeeded: "The existing structure of a setting or culture defines the permissible ways in which goals and problems will be approached" (p. 12), Sarason (1971) claimed. Furthermore, Sarason (1971) argued that, until educational policymakers and practitioners understood that reform is less about adopting new policies and more about changing the culture of practice in schools, the less likely it will be that reform occurs.

Elliott Eisner (1992) reiterated this point when he declared U.S. schools to be "robust institutions…resistant to change" (Eisner, 1992, p. 610). Citing everything from "attachment to familiar pedagogical routines," to a "continued fragmentation of the curriculum," to "teacher isolation," and "traditional student-teacher relationships," he observed that, "It is much easier to change school policy than [it is] to change the ways in which schools function," (p 610). Eisner (1992) added that:

> School reform efforts that challenge tradition can be expected to encounter difficulties, especially from the segment of the population that has done well in socioeconomic terms and has the tendency to believe that the kind of schooling that facilitated their success is precisely the kind their own children should receive (Eisner, 1992, p. 615).

As you can see, school reform is not just simply coming up with new ideas and then working to implement them. It's about transformation: of people's individual beliefs, of existing school cultures, of organizational structures, and of societal norms and attitudes towards schooling. Yet, it is also about building a capacity for change while anticipating and addressing the factors that often inhibit meaningful reform. This is a concept that I will focus on in the next section.

Factors that Affect School Reform

In their analysis of curriculum reform in schools, in the 1960's and 70's, Fullan and Pomfret (1977) identified four types of factors (and fourteen sub-factors) that either promoted or inhibited curricular reform (see Table 4).

Table 4: Factors that Influence the Implementation of Change

Characteristics of the Change

1. Explicitness (how defined is the change)
2. Complexity (the degree of change from present practice)

Strategies Used

1. Inservice Training
2. Resource Support
3. Feedback Mechanisms
4. Participation (users influencing the process of implementation)

Characteristics of the Adopting Unit

1. Adoption process (participation in the decision process)
2. Organizational climate
3. Environmental factors (nature of setting)
4. Demographic factors (characteristics of individuals)

Characteristics of Macro-political Units

1. Design questions (difficulty in sorting out how decisions were made)
2. Incentive systems
3. Role of evaluation
4. Political complexity (the sheer complexity of multilayers of decisions)

Source: Fullan, M., & Pomfret, A. (1977). Research on curriculum and instruction implementation . *Review of Educational Research*, (47), pp. 335-397.

Citing research on school-wide educational reform from 1980 to 2005, Fullan (2007) would later simply this list to: *1) The characteristics of a change, 2) The local circumstances where the change takes place,* and *3) Factors external to the local context (e.g., government regulation)* (see Figure 3)

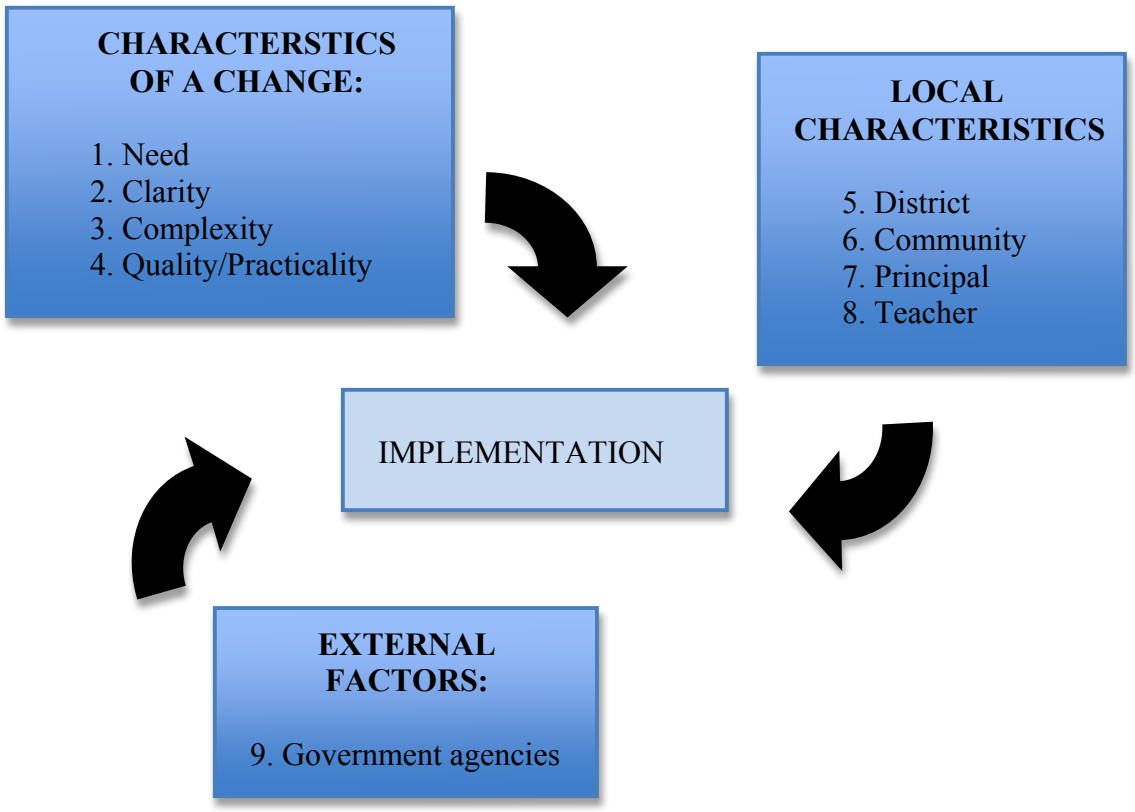

Figure 3: Factors Inhibiting or Supporting Implementation

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[3] Source: Fullan, M. (2007). *The new meaning of educational change. 4e.* New York: Teachers College Press.

Fullan (2007) also created a model for helping others to understand the change process itself, (see Figure 4).

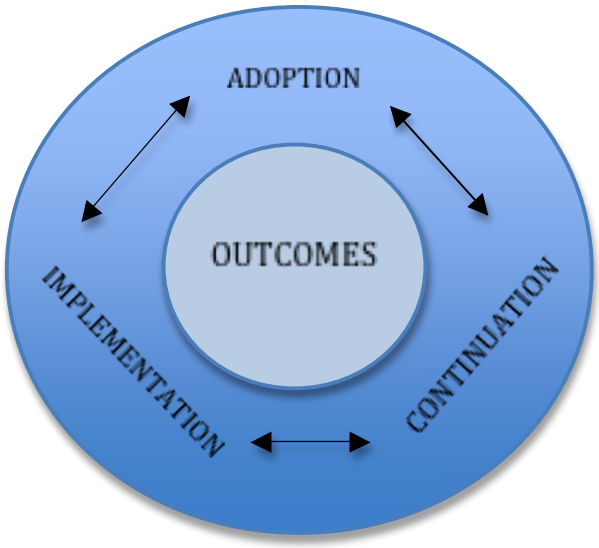

Figure 4: **The Change Process Model**

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4 Source: Fullan, M. (2007). *The new meaning of educational change. 4e.* New York: Teachers College Press.

According to Fullan (2007), educational change occurs in three broad phases (see Figure 1.3). In the first phase, driven by purpose, an individual, group or organization initiates a change or decides to adopt a new educational idea or innovation. Fullan (2007) refers to this phase as the *adoption* stage of the change process, and he explains that it consists of the process leading up to "a decision to adopt or proceed with a change" (p. 65). Once the decision to adopt a particular change has been made, the individual, group or organization then moves ahead with enacting that change. Fullan (2007) describes this second phase as the "implementation stage" (p. 66)—or that period when participants first attempt to put an idea or reform into practice" (p. 66). The extension of the

implementation stage is the third phase of the change process model—what Fullan (2007) refers to as the "Continuation" (p. 66) phase. In this stage, "the new [idea or] program is sustained beyond the first year or two (or whatever time frame is chosen)" (p. 66). Results of this multi-stage process can vary; however, typical outcomes include a change in the behavior, attitude or performance of individuals in an organization, a change in the structure of the organization, or a change in the performance of an organization as a whole.

It is important to understand that Fullan's (2007) multi-stage model represents a *simplified* view of the change process—and that the actual process of educational change is much more complicated. Furthermore, when considering Fullan's (2007) model, one must be careful not to assume that change is a bounded process occurring within a set amount of time or moving in a generally linear direction (from adoption to continuation). As Fullan (2007) notes, "the total time perspective as well as [the period of time for each of] the sub-phases cannot be precisely demarcated" (p. 67). Moreover, decisions made at one stage of the change process may affect decisions made in other stages:

> As the two-way arrows imply, it is not a linear process but rather one in which events at one phase can feed back to alter decisions made at previous stages, which then proceed to work their way through in a continuous interactive way. For example, a decision made at the initiation phase to use a specific program may be substantially modified during implementation, and so on (p. 67).

The characteristics of a change.

Whether or not a reform has clear goals for implementation (Fullan, 2008), the extent to which users understand the purposes of a reform (Stigler and Hiebert, 1999; Fullan, 2007), how prescriptive a reform is (Berman and McLaughlin, 1977; Hargreaves,

2003) and how complex it is (Berman and McLaughlin, 1977) are all factors that can lead to the rejection or sustained adoption of educational change (Fullan, 2007).

According to Fullan (2008), "clear, explicit innovations…fare better by way of implementation" (p. 116) than less descript reforms. This is largely because they are easier to interpret with respect to their purposes and objectives. Borman, Hewes, Overman and Brown (2003) highlighted this point in their analysis of twenty-nine models of whole-school reforms across the country. Of the models that Borman, et al. (2003) focused on in their analysis, the ones with more explicit instructional practices were more widely adopted and implemented. Interestingly enough, these models were also more successful in raising student achievement.

Datnow (2002) reported similar findings in his longitudinal study of 13 schools implementing whole-school curriculum reforms; however, he also reported that the more prescriptive a reform, the less likely it was to last. In fact, of the seven schools that adopted and implemented more prescriptive models of reform, all seven schools had stopped using the reform after six years (Datnow, 2002). A primary reason for this is that prescriptive models of school reform (e.g., Direct Instruction, Success for All, etc.) tend to be rejected by teachers because of their perceived infringement on teacher professional judgment (Fullan, et al., 2006).

Of course, the complexity of a reform can also affect its success during implementation. Fullan, (2007) defines complexity in this context by "the extent of change required of individuals responsible for implementation" (p. 90). Reforms that require individuals to change their behavior are easier to implement than reforms that require people to change their beliefs or attitudes. In turn, the skills required of

individuals, and the types of materials used in a reform can also affect its overall success (Fullan, 2007).

Then again, simpler is not always better in the case of school reform. In fact, Berman and McLaughlin (1977) found that more "ambitious projects were less successful in absolute terms of the percent of the projects goals achieved, but they typically stimulated more teacher change than projects attempting less" (p. 85). Thus, simpler reforms may be easier to enact, but with respect to affecting *authentic* change, the more ambitious the better.

Finally, the *quality* and *practicality* of a reform often determines whether or not it will be successful. Reforms that include useful knowledge or skills—and reforms that speak to the specific needs of a school—are more likely to make it past the implementation stage. In turn, reforms that are perceived to have little purpose and reforms that fail to address the basic needs of an organization often fail after adoption (Berands, Bodilly, & Kirby, 2002; Berend, Chun, et al, 2002; Datnow, et al., 2002).

Strategies used during reform.

Another factor affecting school reform are the strategies used to support implementation (Fullan and Pomfret, 1977). More specifically, whether or not inservice training and/or professional development is provided during the reform, whether or not participants have the necessary resources required to change, if feedback mechanisms are used, and the extent to which participants have the ability to influence the process of implementation are all factors that can promote or inhibit successful change in schools

(Gross, et al. (1971; Sarason, 1971; Fullan and Pomfret, 1977; Berman and McLaughlin, 1977; Fullan, 1982; Ball and Cohen, 1999; Datnow, 2002; Spillane, 2004, Fullan, 2007).

After studying the implementation of new math and science policies in Michigan schools for four years, Spillane (2004) found that teachers who substantially changed their approach to instruction were intensely supported by "sustained interaction with their peers in professional development settings" (p. 60). Furthermore, Spillane (2004) discovered that the vast majority (90%) of the 32 teachers in his study never got beyond the compliance stage of the reform, because they had little time to work and interact with their colleagues. In another study of the same mathematics program, researchers found that teachers were more likely to implement the new mathematics program after they had participated in extended learning opportunities during the summer (Hill and Ball, 2004).

Cohen and Hill (2001) discovered similar findings in their study of the implementation of a mathematics program in 27 schools across the state of California. In a summary of their results, these researchers concluded that, "ongoing teaching inservice is key to sustaining reform" (p. 1). Research has also found that giving teachers the opportunity to understand the purposes of the reform also supported implementation (Cohen and Hill, 2001).

Sustained engagement with an idea is critical for participants in the change process (Fullan, 2007). In fact, without it, participants often fail to move beyond surface level change. Giving people the opportunity to make sense of a proposed reform, teaching them the theory behind the reform practices and allowing participants time to experiment with reform ideas prior to implementation allows participants to see the value or importance of a reform and, in turn, allows for the possibility of success (Marris, 1975;

Pffer and Sutton, 2000; Mclauglin and Mitra, 2000; Bate, Bevan, and Robert, 2005; Fullan, 2007.)

According to clinical psychologist Peter Marris (1975), any change (educational or otherwise) involves fear, loss, anxiety and struggle. *Fear r*esulting from uncertainties about the change, *loss* from being asked to change or abandon one's prior behavior or way of thinking, *anxiety* over what the change might entail (and if one will be able to cope successfully), and *struggle* over *how* to change or even *why* one needs to change in the first place (Marris, 1975).

To alleviate these tensions, Marris (1975) suggests that those working to enact change allow participants the time and opportunity to make sense of new ideas—both on their own and with others:

> No one can resolve the crisis of integration on behalf of another. Every attempt to pre-empt conflict, argument, protest by rational planning, can only be abortive; however reasonable the proposed changes, the process of implementing them must still allow the impulse of rejection to play itself out. When those who have power to manipulate changes act as if they have only to explain, and when their explanations are not at once accepted, shrug off opposition as ignorance or prejudice, they express a profound contempt for the meaning of lives other than their own. For the reformers have already assimilated these changes to their purposes, and worked out a reformulation which makes sense to them, perhaps through months or years of analysis and debate. If they deny others the chance to do the same, they treat them as puppets dangling by the threads of their own conceptions (p. 22).

Reform scholar Michael Fullan (2007) refers to the time and opportunity to deal with a change as time for "meaning making"(p. 12). According to Fullan (2007), if reform participants don't have the opportunity to personally reflect upon and understand how a proposed change fits into their own constructed reality, then the successful implementation and continuation of that reform will be limited:

> The real crunch [in the change process] comes in the relationships between new programs and policies and the thousands of subjective realities embedded in people's individual and organizational contexts and their personal histories. How these subjective realities are addressed or ignored is crucial for whether potential changes become meaningful at the level of individual use and effectiveness (p. 37).

To support *meaning making*, Fullan (2007) suggests that reformers practice "active initiation" (Fullan, 2007, p. 117) or having people learn by doing. Too much time spent planning or trying to make sense of an idea is prohibitive, he claims. What people need instead is the time to play with new ideas, both on their own and with others (Fullan, (2007).

In addition to giving reform participants the chance to own new ideas, providing reform participants them with the necessary resource support is crucial during the change process. "Too many reforms fail," Fullan (2007) argues, "because teachers lack the necessary skills or materials needed for change" (p. 45). Of course, resource support can be anything from textbooks and technology to instructional coaches or guided practice in using the new ideas. Whatever the case, research by Ball and Cohen, (1999); Cohen and Hill (2001); Datnow (2004) and Spillane (2004) suggest that the more resource supports the better. Providing reform participants with both formal and informal feedback mechanisms can also promote change (Bain and Lancaster, 2006).

Finally, the extent to which users can influence a reform may often make or break the successful implementation of school reform. Berman and McLaughlin (1977) alluded to this fact in their analysis of federal programs attempting to implement educational change: "The process of implementation in the instance of educational innovation is essentially a two-way process of *adaption*, in which the innovative strategy is modified to

suit the institution, and the institution changes to some degree to accommodate the innovation" (p. 10). In short, the extent to which a new idea or reform is implemented faithfully often depends on the individuals within that organization and how willing they are to change their attitudes, behaviors and skills. Of course, the degree to which change agents in the institution are willing to allow participants to adapt the idea is also important. As I have mentioned earlier, more prescriptive reforms tend to elicit the most change; however, this change is often short-lived (Datnow, 2002). Then again, less prescriptive reforms risk the danger of infidelity. In their study of teachers learning how to implement new mathematics standards, Stiegler and Hiebert (1999) reported that, "Teachers can misinterpret the reform and change surface features—for example they could include more group work; use more manipulatives, calculators, and real-world problem scenarios—but fail to alter their basic approach in teaching mathematics" (p. 106-107). In the end, Fullan (2007) and others (Gross, Ciacquinta and Bernstein (1971); Berman and McLaughlin, 1977; Fullan and Pomfret, 1977; Sarason, 1978; Datnow, 2002) recommend that change agents seek out a balance between fidelity to and mutual adaptation of a reform:

> Too many reformers have failed because they 'knew' the right answer. Successful change agents learn to become humble. Success is not just about being right; it is about engaging diverse individuals and groups who likely have many different versions about what is right and wrong (Fullan, 2007, p. 40).

Characteristics of the adopting institution.

The characteristics of the adopting institution itself can also determine whether or not a reform is successful (Berman & McLaughlin, 1977). Characteristics such as the

wealth of an organizational system, its size, its age as an institution, the racial and/or socio-economic status of its staff, student population and community, its student and teacher mobility rates, the degree of staff participation allowed in the decision-making process, the staff's perception of its autonomy and the accessibility of school leaders during the change process can each affect the degree of change that occurs in a system (Berman & McLaughlin, 1977). Furthermore, who initiates a change and how decisions are made throughout the change process can also impact a reform's success.

District personnel are often the primary initiators of school reform. Miles and Huberman (1984) brought our attention to this fact and additional research has confirmed that the "support of central office administrators is critical for change in district practice" (Fullan, 2007, 94). Of course, board members, principals, teachers and parents can also initiate change in a district; however, in order for *district-wide* change to occur, there needs to be support from the central office (Campbell and Fullan, 2006).

In turn, school principals are also responsible for enacting change, especially in districts that are more site-based. "All major research on innovation and school effectiveness shows that principals strongly influence the likelihood of change" (Fullan, 207, p. 95). Principals are also key players when it comes to supporting reform. Datnow (2002) claims that teachers often look to their principals to interpret which reforms they need to participate in and which they don't. Datnow (2002) adds that principals need to involve teachers to participate in the decision-making process when it comes to adopting change. There is a strong body of evidence that suggests that teachers are often the preferred source of ideas for other teachers" (Rosenholtz, 1989; Newmann and Wehlage, 1995, Leithwood, 2005 as cited in Fulln, 2008; McLaughlin and Talbert, 2006). By

involving teachers in the decision-making process, principals and district leaders build capacity for reform and make it more likely that reform will be sustained in the long run (Fullan, 2007).

External factors.

In addition to factors specific to the adopting institution, external factors can have an impact on the degree of change that is enacted in schools. Federal mandates often direct change in schools. One simply has to consider the impact of No Child Left Behind (NCLB) on teacher certification, teacher practice and teacher evaluation to recognize this fact. Furthermore, state and local governments have the power to initiate and direct change in schools (Fullan, 2007). One example of this is the recent push for charter school reform by state governments across this country.

Charter School Reform

In 1991, Minnesota was the first state to pass legislation allowing for the establishment of charter schools in this country. Since that time, forty-two states (and the District of Columbia) have passed similar laws. Today, there are currently over 4,100 charter schools in operation throughout the United States (Buckley and Schneider, 2007). Recognized as a new approach to school reform, charter schools are "publically funded schools that are granted a significant amount of autonomy in curriculum and governance in exchange for greater accountability" (Buckley and Schneider, 2007, p. 1).

According to Wells (2002), there are three basic arguments used to rationalize the existence of charter schools. The first is simply that recent attempts to reform public

schools have failed and that drastic changes need to be made to the structure of schooling in order for students to achieve. Citing research on school reform, supporters of the charter school movement claim that the slate must be wiped clean if education is to be improved in this country. In turn, new educational settings must be created in order for true innovation to occur (Wells, 2002). In exchange for the freedom to innovate, charter schools are held more accountable for student achievement (Buckley and Schneider, 2007). A majority of charter schools are issued five-year charters. If a school fails to raise student achievement after that time, it can be closed down by the state for its failure to achieve (Wells, 2002).

Another common rationale for the establishment of charter schools stems from the "effective schools" movement of the 1970's. In response to J.S. Coleman's (1966) claim that factors associated with poverty and parent education levels had more of an impact on a child's academic success than the quality of the child's school, a group of researchers set out to challenge this claim and determine what factors, if any, were best associated with schools that helped at-risk students achieve (Lezotte & Mckee, 2006). The result was a body of evidence supporting the concept that all children can learn as long as they are provided with: 1) High quality instructional leadership; 2) A clear and focused mission; 3) A safe and orderly learning environment; 4) A climate of high expectations, 5) Frequent monitoring of student progress; 6) Positive home-school relations; and 7) Time on task and the opportunity to learn the curriculum (Brookover and Lezotte, 1979; Edmonds, 1982). Often citing the achievement gap, advocates of the charter school movement claim that opening new educational settings—with these factors in mind—

would encourage student achievement and close the gap between white and Asian students and students of color (Wells, 2002).

The most often cited rationale for the establishment of charter schools; however, is rooted in the idea of free market competition (Wells, 2002). For decades, advocates of market-based school reform have argued that public schools are a monopoly in this country—and that little change has occurred in the way schools operate and the way students learn because of this. In order to force the hand of change, supporters of market-based school reform argue that parents should have the right to choose where they send their children to school. If parents have the right to choose, public schools will be forced to perform. If they do not, parents will remove their children from the school and force it to close (Wells, 2002).

Buckley and Schneider (2007) claim that the rationale for the charter school movement can be broken down more simplistically—into what they refer to as "the three C's (competition, choice and community) and the two A's (accountability and achievement) of charter school reform (p. 13). The charter school movement is based on the idea of the free market breeds innovation and competition, which in turn breeds achievement (Buckley and Schneider, 2007). By allowing parents to choose where they send their children to school, schools are forced with the ultimatum of improve or die.

Of course, whether or not charter schools actually improve student achievement is still under debate. Several studies conducted by independent researchers have shown that students who attend charter schools make significantly larger gains in achievement (and graduate from high school at a higher rate) than students in more traditional school settings (Hoxby and Rockoff, 2004; Booker et al, 2007; Hoxby and Murarka, 2007;

Booker et al, 2008; Woodworth et al, 2008; Abdulkadiroglu et al, 2009; Zimmer et al, 2009). However, studies conducted by the American Federation of Teachers (2002), the RAND Institute (2009) and other studies (Gronberg & Jansen, 2001; Greene, et al., 2003; Booker, et al., 2004; Finnigan, et al., 2004; Zimmer, et al., 2009) show less impressive results.

In a 2002 AFT study, researchers concluded that students attending charter schools "generally score no better [and often do worse] on student achievement tests than other comparable public school students" (p. 2). In a 2009 RAND study, researchers found that "there is little evidence that charter schools are producing, on average, achievement impacts that differ substantially from those of traditional public schools." (p. 14).

Still other studies (Gronberg et. al., 2001; Nelson, et al., 2003; TEA, 2005) have shown that students in traditional school settings actually achieve higher academically than students who attend charter schools. Researchers from Stanford University's Center for Research on Educational Outcomes (CREDO) conducted one of the largest studies conducted on differential achievement between charter school and traditional school students for Research on Education Outcomes. In this study of more than 70 percent of that nation's charter school students, researchers found that "Charter school students are not performing as well as their peers at traditional public schools" (CREDO, 2009, p. 4). Thus, the verdict is still out with respect to whether or not charter schools improve student achievement.

Whether or not charter schools are actually free from the constraining regularities that often inhibit reform in public schools is also subject to debate. One of the underlying

difficulties associated with charter school reform is that many people view charter schools as a chance to wipe the slate clean and start schooling over from scratch; however nothing could be further from the truth.

Theoretically, charter schools are meant to be *new* educational settings that operate outside of the bureaucratic structure of large school organizations and to some extent this is true:

> Charter schools are free to lengthen the school day, mix grades, require dress codes, put teachers on their school boards, double up instruction in core subject areas like math or reading, make parents genuine partners in family-style school cultures, adopt any instructional practice that will help achieve their mission—free, in short to do whatever it takes to build the skills knowledge, and character traits their students need to success in today's world, (Buckley and Schneider, 2007, pg. 2).

Yet, charter schools are not as autonomous as some people perceive them to be. In fact, charter school law nationwide dictates that new schools must be approved by the state, and that they must be regulated by state chartering boards over a five-year period (Sarason, 1998). Thus, these *new* educational settings are required to follow established state guidelines related to administration, safety, curriculum, assessment, etc. Furthermore, quite a few charter schools choose to open within existing school districts (not to mention existing cultural settings with existing norms and expectations for schooling). Hence, many of these new institutions voluntarily adopt or adhere to traditional district policies and practices (Sarason, 1998). Charter schools, then, are a good example of how the creation of a new setting is really the merger of two settings—the new with the old, or as Elliot Eisner (1992) once put it, "more of the new wine being

poured into old skin" (p. 9). This merger, of course, presents its own set of unique theoretical and practical challenges.

Seymour Sarason (1998) raised this point after his analysis of interviews with the founding members of six different charter schools: "Charter school leaders discovered that one of the greatest challenges associated with opening a new school was the lack of experience many of the participants had with education or with school reform" (p. 27) Sarason (1998) also claimed that school founders often fell in love "with the vision of the new school" (p. 27) and consequently were not prepared for the harsh realities involved with its opening. According to Sarason (1998), founders also had difficulty with securing finances, achieving their goals in the appropriate amount of time, and they struggled with repeatedly having to convince others of the merits of their new school.

A similar study conducted by Maxwell (2008) showed that school founders spent a considerable about of time simply marketing their school. In her study of the opening of the Miller-McCoy charter school, Maxwell (2008) found that the school founders spent "70-80 hours a week" (p. 1) visiting with parents of prospective students. The school founders took out ads in papers and on billboards to market the school, and they struggled with how to make their school stand out from the more than 40 other charter schools opening in the New Orleans area after Hurricane Katrina (Maxwell, 2008).

The two school founders also spent a considerable about of time clarifying the misconceptions associated with charter schools. For example, a good portion of the community was not aware that charter schools were public schools open to all students in the community. In fact, many thought the Miller-McCoy school was private: "We had to

add ‘tuition free’ to our marketing campaign so that parents wouldn’t assume that Miller-McCoy would be out of reach”, (p. 2).

Locating a building for the school, garnering financial support, putting together a board of community members to oversee the school and securing enrollment needed to open were also issues faced by the founding members (Maxwell, 2008).

Section Summary

As I have illustrated, the adoption, implementation and continuation of educational change is a complex and multi-faceted process. Schools looking to implement changes must address factors both internal and external to their organization, including legislation passed by local, state and national governments. In the next section, I discuss how this fact is evidenced in the implementation of environmental and sustainability education.

Research on the Efficacy and Implementation of EE and SE

Generally speaking, one can group the research literature on environmental and sustainability education (EE/SE) into three categories: (1) descriptive studies that document various approaches to EE/SE; (2) qualitative and quantitative studies conducted over the effects of EE/SE and (3) studies that focus on the barriers to implementing EE/SE education in schools and communities.

Since I have spent much of this literature review describing the history and development of the field of environmental education—and since I have already described several popular approaches to environmental, ecological, place-based and sustainability

education, I have decided to limit this review of research to the last two domains. In particular, I have chosen to highlight those studies related to the challenges with implementing EE/SE in schools.

The Efficacy of Environmental and Sustainability Education

A majority of the studies that have been conducted on environmental and sustainability education (EE/SE) have focused on the effectiveness of this approach to learning (Wheeler et al., 2007). This makes sense given that EE/SE is a field working hard to justify itself and its intentions. One of the most frequently cited studies on the effectiveness of EE/SE is Lieberman and Hoody's (1998) mixed-methods study published by the State Education and Environmental Roundtable (SEER).

Focusing on 40 schools in twelve states (California, Colorado, Florida, Iowa, Kentucky, Maryland, Minnesota, New Jersey, Ohio, Pennsylvania, Texas and Washington), Liberman and Hoody (1998) attempted to capture the effects of a school-wide model of curriculum called Environment as an Integrating Context (EIC). EIC is a model that purports to combine best practices in education (e.g., learner-centered approaches, integrated-interdisciplinary study, cooperative learning) with community-based investigations, in an attempt to help students form a stronger bond with their locale. In their examination of this unique approach to environmental education, Liberman and Hoody (1998) interviewed over 400 students and 250 teachers and principals (and conducted four surveys of school site characteristics) in order to assess how the academic performance of EIC schools compared with schools who did not utilize this program.

In their findings, Lieberman and Hoody (1998) discovered that, in 36 out of 39 measures, students in schools that utilized the EIC model out-performed those who attended non-EIC schools. Liberman and Hoody (1998) also discovered that students in EIC schools scored higher on standardized measures of academic achievement (reading, writing, math, science, social studies, GPA) than students in non-EIC schools. They also found that there were fewer classroom management problems, fewer discipline issues, increased engagement and enthusiasm for learning, greater pride taken in learning and more student ownership of accomplishment in EIC schools (Lieberman and Hoody, 1998).

A follow-up study conducted by the State Education and Environmental Roundtable in 2000 matched eight sets of students from seven different schools to see if students who were exposed to EIC curriculum performed better academically than students who did not participate in EIC. In an analysis of standardized test scores, the SEER researchers found that EIC students outperformed their matched peers in all academic areas (reading, writing, math, science and social studies). Through an analysis of over 150 interviews conducted with teachers, principals and students, SEER researchers also discovered that EIC schools had fewer discipline issues and than students in EIC schools were more likely to attend class than their non-EIC peers (SEER, 2000).

The National Environmental Education Training Foundation (NEETF) conducted a similar study on the effects of environmental education on student achievement in 2000. Using a case study approach and examining schools in six different states (Texas, North Carolina, Wisconsin, Minnesota, Kentucky and Florida), NEETF researchers found that environmental education helped to improve student performance in math, science,

reading and social studies. One positive example cited by these researchers was the performance of students at Hawley Environmental Elementary School in Milwaukee, Wisconsin. Using results of the Wisconsin Reading Comprehension Test as their basis for comparison, NEETF researchers discovered that all of the students attending Hawley Elementary passed the state reading test. This was a surprising result given that only 25% of the total Milwaukee School District population was able to pass this test that same year (NEETF, 2000).

Researchers at the NEETF (2000) also found that the national and state test scores of students who engaged in environment-based programming "almost always exceeded those of students in traditional programs" (p. 9). In particular, the ACT results of students at the School for Environmental Studies in Apple Valley, Minnesota were exceedingly higher than the scores of students across the district, state and even the nation.

In addition to increases in academic performance, the NEETF (2000) study also revealed that students who participated in environmental education showed the ability to make connections and transfer their knowledge from familiar to unfamiliar contexts more than students who experienced non environment-based programming. Researchers also found that students involved in environmental studies learned to "do" science rather than just "learn about science" (p. 9)—and that they seemed to enjoy their learning more, because they were ask to practice science like a professional in the field.

The positive correlation between increased student performance and having an authentic purpose for learning was also illustrated in Volk and Cheak's (2003) study on the effects of environmental education programming on students living on the coast of

Molokai. In this mixed methods study involving over 150 5th and 6th graders, Volk and Cheak (2003) found that students improved their written and oral communication skills when they were given authentic tasks for learning, such as writing about environmental issues that concerned them or presenting their environmental research at community symposiums. According to Volk and Cheak (2003), participating in authentic community-based learning gave the students ownership over their studies and helped them to see themselves as "competent players" (p. 22) in the educational process.

In 2004, researchers from the University of Florida and the University of Minnesota—Duluth conducted a study on EIC programming similar to that of Liberman and Hoody's (1998). The primary focus of Athman and Monroe's (2004) study, however, was on how environmental-based learning affects student motivation and critical thinking. In addition to conducting interviews with over 100 students in 11 Florida schools, Athman and Monroe (2004) examined the performance of 300 students on three norm-referenced tests, including: Schuler's (2004) Achievement Motivation Inventory, the Cornell Critical Thinking Test (1985) and the California Measure of Mental Motivation (2001). After controlling for gender, ethnicity and GPA, Athman and Monroe (2004) found that students participating in EIC programming increased their ability to problem solve and to think critically. They also found that students participating in EIC programs increased their motivation to learn. Athman and Monroe (2004) attributed student improvement in critical thinking to their participation in open-ended research projects and to the program's ability to connect students with their local community. Increases in student motivation were also attributed to learning experiences tailored to student interests and strengths. In particular, students reported being

motivated by projects that gave them the opportunity to apply their knowledge to real-life situations (Athman and Monroe, 2004).

Other studies have also demonstrated the positive social-emotional effects that EE/SE can have on students (American Institutes of Research, 2005; Chawla, 2007; Power & Powers, 2008). In particular, EE programming has been found to encourage conflict resolution between students (American Institutes of Research, 2005), increase student self-esteem (American Institutes of Research, 2005), encourage environmental stewardship and civic engagement in students (Chawla, 2007), energize the classroom by motivating both students and teachers (Powers, 2004) and connect schools with their communities (Powers, 2004).

As you can see, the effectiveness of EE on both student achievement and student attitudes, behaviors and beliefs has been well documented by researchers in the field. Another major area of emphasis of research in the field—and one that is more relevant to the purposes of this particular study—has been on program implementation. In particular, a wealth of research has been conducted on the challenges to implementing EE programming in schools.

Challenges to the Implementation of Environmental and Sustainability Education

Since its inception, supporters of environmental education (EE) and sustainability education (EE) have been challenged to find strategies for effectively implementing EE/SE in both formal and informal settings. Of particular concern has been the integration of environmental studies into the public school curricula (Munson, 1997). While I have previously described some examples of successful EE programs, there is

still much work to be done if educators are to achieve the goal of teaching students how to think, act, care, behave and live well with the earth.

One challenge to implementing EE in the public school setting is the fundamental disconnection between the structure and purposes of school and the aims of environmental education itself (Stevenson, 1987). An example of this comes from research conducted by Gregory Smith (2007), a leading advocate for including ecological and environmental education in schools.

In Smith's (2007) qualitative analysis of three schoolteachers working to implement environmental education into their classrooms, Smith (2007) found a strong resistance from some parents and administrators to ethical basis of environmental education. As part of a unit on the reintroduction of wolves into Oregon's forests, the teacher in Smith's (2007) study asked her students read texts from multiple points of view then compose an opinion paper about how they felt the state should resolve the issue between those who were in favor of the reintroduction of wolves into the community and those who were against it. The teacher then suggested that her students attend a local hearing on the issue and read their opinion papers to the committee. As it turned out, a majority of her student's sided with the pro-wolf lobbyists (Smith, 2007).

Shortly after the public hearing, the teacher at the heart of his study experienced a "firestorm" (p. 200) of protests from lobbyists and legislators opposed to the state's plan to reintroduce wolves into the ecosystem. Those who objected to this teacher's efforts to implement EE in her classroom demanded that her curriculum be reviewed to determine if she had consciously manipulated students into siding with those in favor of wolf reintroduction. A district-sponsored investigation was held, but in the end this

investigation showed that the teacher had "indeed demonstrated a careful presentation of multiple perspectives" (p. 200).

Smith's (2007) study is important, because it shows that one of the barriers to implementing environmental education is its exploration of sometimes-controversial topics. Teachers, especially those who are concerned about keeping their tenure, may choose to avoid taking up environmental education, especially when it asks students to explore controversial topics in communities that are particularly polarized about a certain issue (Smith, 2007).

Smith's (2007) study is also important, because it speaks to the inherently ideological nature of EE—another challenge to its implementation in public schools. Much of the literature on EE encourages teachers to engage students in the discussion of environmental issues and engage them in real-world problem solving about these issues in their local communities. However, the normative agenda of public schooling discourages overtly political discourse from teachers (Hlebowitsh, 2007). This is, of course, the reason why the teacher in Smith's (2007) study chose to present a balanced perspective on the reintroduction of wolves in her classroom. It is also the reason why the teachers at the heart of Cotton's (2006) study chose to implement environmental education in a neutral way.

In 2006, Cotton conducted a qualitative case study of three geography teachers working to implement environmental education in their secondary school classrooms. Interestingly enough, when asked about the inherent ideological nature of the curriculum itself one of the teachers replied: "I'm not out there to turn them into green, banner-waving, fundamentalist environmentalists…They've got to come to it themselves. I

don't think we should be imposing our views on them. I don't think that's my role." (p. 74). The two other teachers in Cotton's (2006) study expressed similar views. In fact, one female teacher went as far to say, "I don't think [we] should be telling [the students] what to think. I think because you are a teacher then you may have some influence on them, and therefore shouldn't be using [that influence] to say, 'This is what I think.'" As you can see, some teachers may shy away from the inherently ideological nature of EE, but is this doing the field justice? If one of the aims of EE is to transform student thinking and produce students who are ethically concerned about the environment, how can this truly occur if teachers shy away from taking an ideological position?

Some critical theorists in education (Apple, 1993) have argued that all schooling is inherently ideological—and that the whole idea of taking a balanced perspective is absurd. Education is not a neutral undertaking, nor should it be, claims Michael Apple (1993): "There is…always a politics of official knowledge, a politics that embodies conflict over what some regard as simply neutral descriptions of the world and what others regard as elite conceptions that empower some groups whilst disempowering others" (p. 222). Thus, in the eyes of Apple (2006) and other critical theorists, the teacher at the heart of Smith's (2007) study could be chided for taking a watered-down approach to environmental education, as might the teachers Cotton's (2006) study. My point is not to advocate for emphasizing the ideological nature of EE (although I have already admitted that I am a supporter of such approaches to education), but to point out that one of the challenges to implementing EE in schools is the contradiction between its strong ideological nature and the structure and expressed aims of public education itself (Barret, 2007).

Another example of how the aims of schooling can become a barrier to implementing EE can be found in the research of the Rural Challenge (1995), as well as the theoretical arguments of Gruenewald and Mantaew (2007). Citing the effects of the accountability movement, Gruenewald and Mantaew (2007) describe how No Child Left Behind (NCLB) works against the aims of environmental education by focusing schools' agenda on students' acquisition of discrete facts and skills in the traditional content areas of literacy, mathematics and science" (Gruenewald and Mantaew, 2007 as cited in Stevenson, 2007, p. 268). This narrowing of the curriculum to skills that will prepare students for work competition in a global marketplace leaves little room for the discussion of environmental problems or taking up environmental initiatives (Stevenson, 2007). An example of this narrowing of the curriculum was found in a study conducted by the Rural Challenge in 1998. In the Rural Challenge (1998) study, researchers learned that teachers often worried that state standards required schools to adopt curricula and teaching methods that "construe learning too narrowly, [thus] severing crucial linkages between students' lived experiences and rigorous academic content" (p. 2). For these teachers, the type of knowledge and skills that students are asked to display on the state-mandated exams required less sophistication than the knowledge and skills they would have gained by participating in environmental education (Rural Challenge, 1998). Of course, the structure of schooling has also been found to inhibit the implementation of environmental education in schools.

According to Stevenson (2007), "the structures and realities of schools virtually compel teachers to be primarily concerned with maintaining order and control in their classrooms" (p. 273). Furthermore, other standardized practices of schooling, such as the

fragmentation of the curriculum into discrete bodies of knowledge, the organization of the school day into periods and the supervisory limitations put on schools run contrary to the grain of environmental education (Smith, 2007; Stevenson, 2007). This is because environmental education often involves interdisciplinary study, a focus on systems thinking and the need for students to explore their local surroundings in an effort to participate in environmental initiatives. Other structural issues, such as securing parent volunteers (for supervisory purposes) and funding transportation (for place-based exploration) can also inhibit the successful implementation of environmental education (Smith, 2007).

Of course, the extent to which teachers have the knowledge and skills (and desire) to implement environmental education is also a strong indicator of successful implementation. As Paul and Volk (2002) demonstrated in their study of Wisconsin and Ohio state teachers working to implement environmental education in their classrooms, the more inservice training that teachers received, the more likely they were to implement the tenants of EE with students. Furthermore, teachers who participated in professional development opportunities explicitly related to the purposes of EE felt "more confident" (p. 1) in implementing EE in their classrooms. This finding is in-line with the work of Fullan (2007) and other reform researchers who claim that meaning making is the key to any successful reform.

Similar results demonstrating the positive correlation between teacher knowledge of EE and increased implementation of EE practices in the classroom were found in studies conducted by Jickling & Spork (1998), Robottom, et al. (2000), Plevyak, et al. (2001), Summers & Kruger (2003), Cutter-McKenzie & Smith (2003) and Cotton (2006).

However, as Hungerford and Volk (1990) demonstrated in their study of teachers and students participating in EE programs across the US, knowledge is not enough. If teachers and students are to achieve the expressed aims of EE (developing an awareness and change in attitude about the environmental that leads to more environmentally conscious action), students need the opportunity to apply these skills in a real-world setting. Unfortunately, as I mentioned before, having the time and freedom for such practice is rarely the case in many schools today.

One study that was of particular interest to me (and to the import of this study) in my exploration of research conducted on the implementation of EE/SE was one conducted by Samuel (1991) on an environmental immersion school in Canada. The purpose of Samuel's (1991) study was to examine the early stages of a school adopting a comprehensive model of environmental education. Using Fullan's *Change Process Model* (1984) as her analytical lens, Samuel (1991) attempted to document the complexities of implementing this schoolwide model of EE. In the analysis of her findings, Samuel (1991) uncovered a number of obstacles to implementation including: "1) Conceptual problems about environmental education, 2) Poorly defined school philosophy and goals, 3) Difficulties in coordinating the project between individual efforts and departments; and 4) A hiatus between administration and teacher perceptions [of environmental education]" (p. 13). Samuel (1991) also found that teachers inability to translate the concept of environmental education into educational practice limited the successful implementation of practice in this school.

As you can tell, Samuel's (1991) study is quite similar to my own, thus my excitement in locating it. However, there are three important distinctions between

Samuel's (1991) study and my own. The first is that the school at the heart of Samuel's (1991) study had already been open for several years prior to moving to a school-wide model of EE. Secondly, the curriculum that Samuel's (1991) immersion school adopted was written by the ministry for environmental education in Canada, not by teachers and administrators at the school. Finally, the school at the heart of Hilary's study adopted a school-wide model of EE, not sustainability education—and I have discussed previously, each of these approaches to education differ with respect to both theory and practice.

Study Rationale

Although much research has been conducted on the effects of environmental education and on challenges to its implementation, little research has been conducted on efforts to enact sustainability education. Furthermore, no researchers have attempted to document the processes and complexities involved with *designing a school-wide orientation* toward sustainability education. Having such documentation is important for three reasons. For one, providing readers with a detailed description of the processes involved with enacting sustainability education will help clarify the subtleties between environmental and sustainability education. In turn, having a detailed description of the processes and complexities involved with designing sustainability education will provide researchers and practitioners with a starting point for both future research and practice. Finally, because the founding members of True Leave decided to open their school in the charter school setting, having a detailed account of the processes and complexities involved with enacting sustainability education will provide some insight into whether or not charter schools are a viable option for the teaching of SE.

CHAPTER 3

METHODOLOGY

Overview

In this chapter, I provide readers with an overview of the methodology that I used to conduct this ten-month case study. I begin this chapter by explaining the purposes of my study and by discussing the theoretical frameworks that I used to help create my research questions and guide my analysis. I then provide my rationale for selecting the case study method to examine how the founding members of a secondary charter school worked with members of the local and regional community to create a school-wide model of sustainability education. Next, I describe the processes and procedures that I used for data collection, analysis and interpretation in this study, and I end this chapter by discussing the issues of ethics and trustworthiness, as well as those related to my role as a researcher.

Purpose and Research Questions

The purpose of this study was to examine how the founding members of a secondary charter school worked with members from the local and regional community to design a schoolwide model of sustainability educaiton. A secondary purpose of this study was to document the complexites involved with creating this model. The two research questions that I used to guide my study were:

> 1) How do the founding members of a secondary charter school work with members from the local and regional community to design a schoolwide to sustainability education?

2) What are the complexities involved with designing a schoolwide model of sustainability education?

In studying how the founding members of this charter school developed their personalized model of sustainability education, I hoped to accomplish three things. The first was to document the founding member' reasons for opening a school rooted in the concept of sustainability. I then hoped to create a "thick description" (Geertz, 1973, p. 21) of the processes involved with designing a schoolwide model of sustainability education. Finally, it was my intention to document the complexities involved with developing a school-wide orientation of sustainability education in the charter school setting. In the end, the purpose of this study was to provide both researchers and practitioners with a deeper understanding of what it means to enact environmental education in general and sustainability education in particular.

Theoretical Framework

To clarify my research purposes—and to help guide my data collection and analysis—I employed a theoretical framework grounded in the work of Michael Fullan (2007) and Eliot Eisner (1992).

According to Fullan (2007), educational change occurs in three broad phases (see figure 3 on the next page). In the first phase, driven by purpose, an individual, group or organization decides to adopt a new educational idea or innovation. Fullan (2007) refers to this phase as the *adoption* stage of the change process, and he explains that it consists of the process leading up to "a decision to adopt or proceed with a change" (p. 65). Once the decision to adopt a particular change has been made, the individual, group or

organization then moves ahead with enacting that change. Fullan (2007) describes this second phase as the "implementation stage" (p. 66)—or that period when participants first attempt to put an idea or reform into practice" (p. 66). The extension of the implementation stage is the third phase of the change process model—what Fullan (2007) refers to as the "Continuation" (p. 66) phase. In this stage, "the new [idea or] program is sustained beyond the first year or two (or whatever time frame is chosen)" (p. 66). Results of this multi-stage process can vary; however, typical outcomes include a change in the behavior, attitude or performance of individuals in an organization, a change in the structure of the organization, or a change in the performance of an organization as a whole (Figure 5).

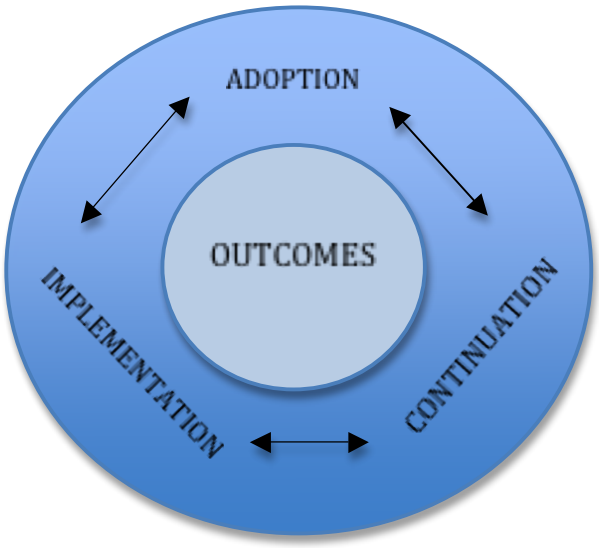

Figure 5: **The Change Process Model**

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[5] Source: Fullan, M. (2007). *The new meaning of educational change. 4e.* New York: Teachers College Press.

In their review of educational research on curriculum implementation, Fullan and Pomfret (1977) identified two sub-stages that can be added to this change process model. The first was a "planning for implementation stage" (p. 379), which they defined as "the preparation that occurs after adoption but before initial use," (p. 379). The second sub-stage that Fullan and Pomfret (1977) identified was a period of "initial implementation" (p. 379)—or that point in the change process where participants actually begin employing the new idea or innovation (see Figure 6).

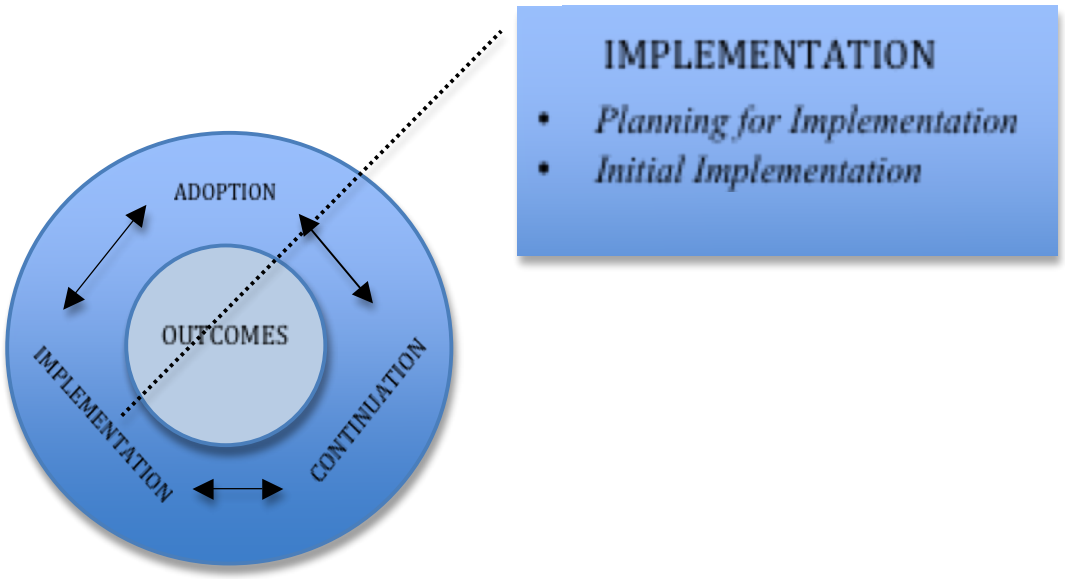

Figure 6: **The Two Sub-phases of the Implementation**

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6 Source: Fullan, M., & Pomfret, A. (1977). Research on curriculum and instruction implementation. *Review of Educational Research*, (47), pp. 335-397.

In their analysis of curriculum reform schools in the 1960's and 70's, Fullan and Pomfret (1977) identified four types of factors (and fourteen sub-factors) that either promoted or inhibited curricular reform (see figure). Citing research on school-wide educational reform from 1980 to 2005, Fullan (2007) would later simply this list to: *1) The characteristics of a change, 2) The local circumstances where the change takes place,* and *3) Factors external to the local context (e.g., government regulation)*.

Table 5. Factors that Influence the Implementation of Change

Characteristics of the Change

1. Explicitness (how defined is the change)
2. Complexity (the degree of change from present practice)

Strategies Used

1. Inservice Training
2. Resource Support
3. Feedback Mechanisms
4. Participation (users influencing the process of implementation)

Characteristics of the Adopting Unit

1. Adoption process (participation in the decision process)
2. Organizational climate
3. Environmental factors (nature of setting)
4. Demographic factors (characteristics of individuals)

Characteristics of Macro-political Units

1. Design questions (difficulty in sorting our how decisions were made)
2. Incentive systems
3. Role of evaluation
4. Political complexity (the sheer complexity of multilayer's of decisions)

Source: Fullan, M., & Pomfret, A. (1977). Research on curriculum and instruction implementation. *Review of Educational Research*, (47), pp. 335-397.

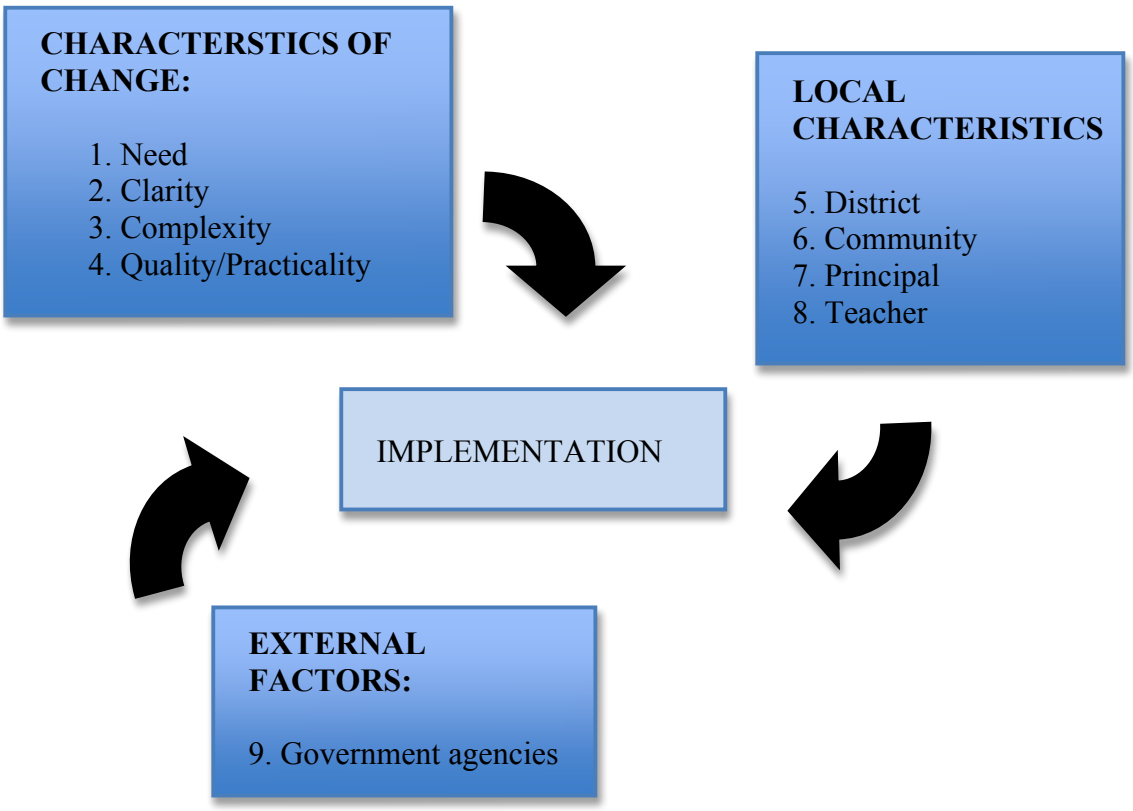

Figure 7: **Factors Inhibiting or Supporting Implementation**

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[7] Source: Fullan, M. (2007). *The new meaning of educational change. 4e.* New York: Teachers College Press.

As you can tell from the diagram above (Figure 7), the successful implementation of a new ideas or innovations often depends on the characteristics of the change itself (e.g., whether or not the change is perceived as necessary by individuals working within the organization, how clearly defined the change is, how complex the change is, and whether or not the change is perceived as practical and purposeful). In turn, successful

implementation often depends on the individuals participating in the change process (e.g., whether or not individuals have the knowledge to carry out the change, how a change is introduced to those working in the organization, who is involved in the decision-making process, etc.) Of course, factors both internal and external to an educational organization (e.g., administrative expectations for teacher professional development, government regulations, policies, etc.) can also impact the degree of change that takes place.

It is important to understand that Fullan's (2007) multi-stage model represents a *simplified* view of the change process—and that the actual process of educational change is much more complicated. Furthermore, when considering Fullan's (2007) model, one must be careful not to assume that change is a bounded process occurring within a set amount of time or moving in a generally linear direction (from adoption to continuation). As Fullan (2007) notes, "the total time perspective as well as [the period of time for each of] the sub-phases cannot be precisely demarcated" (p. 67). Moreover, decisions made at one stage of the change process may affect decisions made in other stages:

> As the two-way arrows imply, it is not a linear process but rather one in which events at one phase can feed back to alter decisions made at previous stages, which then proceed to work their way through in a continuous interactive way. For example, a decision made at the initiation phase to use a specific program may be substantially modified during implementation, and so on. (p. 67)

Despite these qualifications, Fullan's (1977; 2007) conceptualization of the change process helped me to frame my research purposes by giving me a way to conceive of the school at the heart of this study. More specifically, when I first came across the True Leaves Charter School, the founding members had just received approval for their charter application. Thus, within the context of Fullan's (2007) model, the founding

members had decided to adopt a change and were next preparing to enter the second stage of the change process (the implementation stage). Understanding that no research exists on how the founding members of a charter school *plan* for sustainability education, the opening of the True Leaves charter school provided me with a unique opportunity to document the *planning for implementation* stage of the change process. Another way to think of this would be to consider the school at the heart of this study as a plane attempting to land on the runway of implementation. If the True Leaves were a plane, then the opening of this school provided me with an opportunity to document the initial "skip" of the plane's wheels onto of the runway of implementation—that initial moment in time when theory meets practice and when new ideas begin to take shape.

Elliot Eisner's (1992) views on schooling and school reform also helped to frame my research purposes in this study. More specifically, Eisner's (1992) conceptualization of schools as "living systems" (p. 619) and his suggestion that participants of school reform consider the "five major dimensions of schooling" (p. 621) in their efforts to change schools helped me to conceive of the school at the center of this study as an ecological system. Eisner's (1992) ideas about school reform also helped me guide my data collection and my data analysis.

Arguing that the aspiration to reform schools has been a "recurrent theme in American education" (p. 611), but that the major features of schools (e.g., its focus on transmitting knowledge, its fragmented structure and approach to the curriculum, etc.) have remained largely intact, Eisner (1992) suggests that modern-day participants in school reform re-conceptualize their understanding of schools and re-think their approach to school reform.

Simply put, instead of viewing schools as parts of a whole—and instead of seeing school reform as an attempt to fix those parts in isolation—Eisner (1992) suggests that we begin to think more "ecologically" (p. 619) about schooling and school reform:

> Schools are like ecological systems. Given a critical mass, what one does in one-place influences what happens in another. When the mass is not critical, changes made in one place are returned to their earlier position by the others, almost as a cybernetic mechanism keeps a rocket on a steady course. If significant changes in our schools are to occur, our educational system needs to be viewed as a whole, as an ecosystem of mutual independence (Eisner, 1988, p. 29).

In keeping with this idea, Eisner (1992) suggests that participants in school reform be conscious of the specific five dimensions of schooling: *the intentional, the structural, the curricular, the pedagogical and the evaluative* (Table 6).

Table 6: **The Five Dimensions of Schooling**

Dimension	**Explanation**
Intentional	The aims of schooling or the aims of the curriculum.
Structural	How a school chooses to organize the time, space and curriculum.
Curricular	The content of the curriculum or how the curriculum is organized.
Pedagogical	How the curriculum is planned and enacted.
Evaluative	How the curriculum and student learning is assessed in schools.

Source: Eisner, E. W. (1992). Educational reform and the ecology of schooling. *Teachers College Record*, 93(4), 610-627.

The *intentional* dimension refers to the aims or purposes of schooling. *What are the aims of the school at the heart of a reform? What are the aims of its curriculum? How do these aims coincide with the aims of society?* According to Eisner (1992), these are some of the important questions that reform participants must ask both prior to and throughout the reform process.

Eisner (1992) makes an effort to note that recent attempts at school reform have focused on more conventional aims (e.g., increasing test scores); however, these are not the intentions that schools were originally conceived to address. Schools "do not exist for the sake of high levels of performance, [rather] the significant dependent variables in education are located in the kinds of interests, voluntary activities, levels of thinking and problem solving that students engage in when they are not in school" (p. 622). In short, the aims of schooling must be in-line with the expectations that society has for its graduates.

The second dimension of schooling that Eisner (1992) recommends for consideration in the reform process is the *Structural.* The *structural* dimension refers to ways in which "subject, time and roles" (p. 622) are organized in a school setting. Instead of accepting the preconceived notions of school structure and organization, Eisner (1992) suggests that reform participants "problematize the structures we have lived with for so long," (p. 622). For example, take the *structure* of most school curriculums. In a majority of schools in America today, students experience a "collection type of curriculum" (p. 622)—where each subject is studied in isolation from all of the other subjects. *Why do we continue to organize the school curriculum in this way? What are the unintended consequences of this approach to curriculum? Better yet, is this*

organizational structure supportive of the purposes and aims of schooling? My point in raising these questions is not to advocate for or against a "collection" approach to curriculum in schools. Rather my intention is simply to point out the types of questions that Eisner (1992) suggests for consideration during school reform.

The third dimension of schooling that Eisner (1992) recommends for consideration is the *Curricular* dimension. According to Eisner (1992), when reforming school curriculum, the most important decisions are "those related to content [or what is taught]" (p. 622), as well as the way educational experiences are to be organized and how the knowledge is to be assessed. Some other questions a reform participant might ask when considering curricular reform in schools are: *What value does the school place on specific topics and/or ideas by including or not including them in the curriculum?* and *What opportunities are there for students to frame and develop their own purposes for learning?*

The fourth dimension for consideration in Eisner's (1992) framework for school reform is the *pedagogical* dimension. Curriculum reform cannot occur in isolation or without attention to how the curriculum will be taught. In turn, whether or not teachers have the skills required to teach a new curriculum will also impact the degree of success in the school reform. Given these facts, those looking to promote change in schooling must not only pay attention to what is being taught but also *how* it is being taught. Furthermore, it would benefit reform participants to focus on the difference between what teachers plan to teach and what actually gets taught (or the difference between the planned and the enacted curriculum).

According to Eisner (1988), the final dimension that one must consider in a

comprehensive approach to school reform is the *evaluative* dimension:

> What we evaluate and the ways we evaluate have a profound effect on what we pay attention to school. We cannot achieve a balanced curriculum and better teaching if our evaluation procedures emphasize forms of performance that contradict or are inconsistent with [the] aims of schooling (p. 29).

Eisner (1992) goes on to argue that the main form of evaluation in schools today is the achievement test, which fails to assess whether or not children can perform as students and whether teachers can perform as professionals. He further contends that such a narrow approach to assessment encourages "conservative [educational] practices" (Eisner, 1988, p. 29) and that it "directs students' attention to very limited goals" (p. 29). In order to remedy this situation, Eisner (1992) suggests that reform participants re-examine the aims and purposes of schooling, in order to develop instructional and evaluative systems that are consistent with those aims. He also recommends that schools organize their time, space and the curriculum in ways to support those evaluative systems.

As I have stated before, the purpose of this case study was to examine how the founding members of a secondary charter school worked with members from the local and regional community to create a school-wide model of sustainability education. To help clarify my research purposes, I used Eisner's (1992) ideas to help conceive of the True Leaves Charter School as a "living system" consisting of multiple dimensions. In turn, I used this conceptualization to develop the following research sub-questions:

1) What are the educational intentions of the founding members of the True Leaves charter schools?
2) Are these intentions manifested in their educational planning?
3) How will the time be organized at the True Leaves School?

4) How will the physical space be organized?
5) How will learning experiences be organized?
6) What philosophical tenants and/or approaches to teaching and learning guide the proposed curriculum?
7) What evaluative systems will be used to assess student learning?,

I also used Eisner's (1992) suggested framework for school reform as an organizational tool throughout the data collection and data analysis cycles. For example, during the third pass through my data, I used Eisner's (1992) theories to help categorize information into five specific dimensions: 1) Data related to the *Intentional*; 2) Data related to the *Structural*; Data related to the *Curricular*; 4) Data related to the *Pedagogical; 5)* Data related to the *Evaluative*.

Case Study as a Methodology

One of the difficulties associated with case study research is the fact that little consensus exists over the definition of the actual term. Yin (1984) believes that case study is a research process, "an empirical inquiry that investigates a contemporary phenomenon within its real-life context" (p. 23). Bromley (1986) supports this claim and states that case study is the "systematic inquiry into an event or set of related events which aims to describe and explain [that] phenomenon of interest" (p. 302). Stake (1995), on the other hand, defines case study according to the object at the center of one's study. Merriam (1998) agrees and says that case study is less a process and more the analysis of a specific "thing, a single entity, a unit around which there are boundaries" (p. 27).

Another way to define case study is with respect to its outcomes. If we accept Merriam's (1998) argument that case study involves the production of "an intensive,

holistic description of a single instance, phenomenon or social unit," (p. 27), then we can define case study in terms of this description. This is how Wolcott (1990) defines case study—as the "end-product of field-oriented research" (p. 36).

Before I share my rationale for employing case study as a research strategy, let me state that I believe case study to be a process, an object of study *and* the end product of research. And though I disagree with his limiting case study to the naturalistic paradigm, Creswell (2007) sums up my understanding best when he states:

> Case study research is a qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information (e.g. observations, interviews, audio-visual material, and documents and reports) and reports a case description and case-based themes (p. 73).

Now let me explain why I chose to use case study to examine how the founding members of a secondary charter school created a school-wide model of education rooted in sustainability.

Rationale for Using the Case Study Method

According to Merriam (1998), "*understanding* is the primary rationale" (p. 200) for conducting a qualitative case study. Merriam (1998) adds that, "Case study design is employed to gain an in-depth understanding of a situation and meaning for those involved. The interest is in *process* rather than outcomes, in *context* rather than a specific variable, in *discovery* rather than confirmation" (p. 19).

With that said, the primary reason why I chose to employ case study as my research methodology in this study is because I wanted to understand *how* the founding members of a secondary charter school developed a plan for educational practice rooted

in the concept of sustainability. More specifically, I wanted to gain a deeper understanding of the *process* involved with translating the concept of sustainability into educational practice—and I wanted to know more about the expected and unexpected complexities involved with this process.

Of course, this line of reasoning is consistent with Yin (1984) and Merriam's (1998) belief that one's research questions drive one's choice of methodology: "Determining when to use case study as opposed to some other research design [often] depends upon what the researcher wants to know" (Merriam, 1998, p. 32). Thus, a researcher looking to answer "how" and "why" questions (Yin, 1984, p. 18) might choose to employ case study over another type of research design (e.g. survey), simply because this method is better suited for answering those types of questions:

> …'what' questions, 'who' and 'where' questions (or their derivatives—'how many' and 'how much') are likely to favor survey strategies or the analysis of archival records….in contrast 'how' and 'why' questions are more *explanatory* and likely or lead to the use of case studies, histories, and experiments as the preferred research strategies. This is because such questions deal with operational links needing to be traced over time, rather than mere frequency or incidence. Thus, if you wanted to know *how* a community successfully thwarted a proposed highway…you could not rely on a survey of archival records but would have to conduct what in the final analysis would be a history or a case study" (Yin, 1984, p. 18).

Because I didn't quite know *how* the founding members of the True Leaves charter school were going to develop their plan for educational practice—and because I was unaware of what complexities, if any, they might face—I also chose to employ case study design for its flexibility. Unlike experimental designs, which require more tightly controlled research conditions, case study is appropriate for situations when "the boundaries between phenomenon and context are not clearly evident" (Yin, 1984, p. 23).

This design is also well suited for situations when "the variables are so embedded in the situation as to be impossible to identify ahead of time" (Merriam, 1998, p. 32). Hence, because I didn't quite know exactly what I would find in my study of the opening of this charter school, I needed a design that would allow me the flexibility to adapt my research questions, to ask additional questions, and one that would allow me to cast my "net for evidence widely" (Bromley, 1986, p. 23).

According to Yin (1984), case study is also an appropriate choice of research methodology when the subject of one's interest is rare or *unique*. This is because case study allows an investigator to produce a detailed account of the phenomenon or social unit in question that can later be used as a starting point for future research (Merriam, 1998). Because the opening of the True Leaves charter school offered a *unique* opportunity for understanding *how* educators plan sustainability education—and because no other studies have attempted to document this process—I chose this case study because it allowed me to create a "thick description" (Geertz, 1973, p. 21) of the planning process.

Site Selection and Research Participants

Maxwell (2005) writes that, in qualitative research, sampling is neither about probability nor convenience. Rather, it involves purposeful sampling in which particular settings, persons, or events are deliberately selected to provide important information that could not have been rendered from other choices (Lincoln & Guba, 1985). Thus, I chose the True Leaves Charter School as my research site, because it provided me with a unique opportunity for examining how the founding members of a secondary school translated their understandings about sustainability into a school-wide model for educational

practice. In turn, research participants were selected based on the perceived data they would elicit.

In total, twenty-nine people participated in this study. Eleven of these participants were volunteers working for the True Leaves Charter School. Eight were members of the school's founding board and/or members of the school's administrative staff, one was a graduate-student-researcher involved with studying the school for her master's thesis, and the rest were members of the local school board or community members involved with either the planning process or interested in having their child attend the school. I was introduced to most of these participants by the principal of the True Leaves Charter School, who acted as my primary "gatekeeper" (Marshall and Rossman, 2006, p. 36) throughout this study. The only exception being the eight community members to whom I introduced myself at planning sessions and community outreach forums.

It should be noted that informed consent agreements were forwarded to 15 of the 29 participants via the school principal prior to my arrival at the research site. Upon arrival and throughout the study, I asked participants to sign consent agreements prior to their participation in the study. I also asked for verbal consent to audiotape participants prior to interviews. Participation was on voluntary basis in this study, and participants were given the option to withdraw from the study at any time without penalty. None of the participants chose to withdraw.

Data Collection

According to Smith (1978), researchers involved in case study research must be able to delineate the boundaries of their study—otherwise, they are likely to waste

precious time collecting and analyzing information that will not be helpful in answering their research questions. Miles and Huberman (1994) visually represent this concept as a circle with a heart drawn in the middle. The heart is the object of one's study and the circle represents the differences between what a researcher will explore and what the researcher will not (Miles and Huberman, 1994). In the case of this particular research study, two things bounded my data collection: participants and the period time spent in the field.

Fullan's (2007) conceptualization of change also helped me to put some parameters around my data collection. In particular, Fullan's (2007) model helped me to "bound" my study by allowing me to focus my data collection on the *planning for implementation* stage of the change process—that period in time that occurs after the adoption of a change but before its implementation. Thus, the focus of my study was on the *planning process* that occurred after the members of this charter school received approval for their charter, but before they opened their doors to students.

For validity purposes—and for the purposes of triangulation[1]—I collected multiple forms of data (Yin, 1984). Semi-structured interviews were conducted with 12 of my 29 research participants. Focus group interviews were conducted with 11 participants. I also took field notes in my direct observation of administrative meetings, planning sessions and community outreach forums. Documents were also collected for analysis, including audio-visual materials (e.g., photographs, website postings, video).

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[1] According to O'Donoghue and Punch (2003), triangulation is a method of cross-checking data from multiple sources to search for regularities in that research data.

Table 7: Data Collection Matrix (Type of Information by Source)

Participants and Informational Sources	*Interviews*	*Observations*	*Documents*	*Audio-Visual Materials*
School founder (n =1)	Yes	Yes	Yes	Yes
Founding School Board Members (n= 7)	Yes	Yes		
School Administrative staff (n = 3)	Yes	Yes	Yes	
Volunteer staff (N =8)	Yes	Yes	Yes	
Community Outreach Coordinator (Urban) (n =1)	Yes		Yes	Yes
Community Outreach Coordinator (Rural) (n =1)	Yes			
Student researcher (n =1)	Yes			
Community school district board member (n =1)	Yes			
Community school board president (n =1)			Yes	Yes
Community parents (n =5)	Yes	Yes		
Phone calls and emails	Yes			
School Charter			Yes	
Newspapers articles			Yes	Yes
Web-based sources			Yes	Yes

A more detailed list of the informational sources that I collected in this study can be found in Table 7.

To improve the accuracy, credibility, validity and transferability of my findings, I performed member checking throughout this study. Member checking is a process of verifying the collection and interpretation of data with research participants (Lincoln & Guba, 1985). During my semi-structured interviews, I restated and summarized information, in order to determine if I had heard my participants correctly. I also shared my observation notes and the transcripts of my interviews with participants and—after data analysis—I shared the results of my findings. No changes were made as a result of this process.

Interviews

Kavle (1996) defines qualitative research interviews as "attempts to understand the world from the subjects' point of view, to unfold the meaning of peoples' experiences, to uncover their lived world prior to scientific explanations" (p. l2). To gain a deeper understanding of how founding members of this charter school translated their intentions into a plan for educational practice, I chose to conduct a mixture of semi-structured and focus group interviews with 23 of the 29 participants involved in this case study.

According to Bernard (2002), using semi-structured interviews is effective when researchers hope to collect data from particular individuals by meeting with them only once or twice. During a semi-structured interview, researchers ask participants questions they have prepared beforehand. At the same time, researchers also encourage

participants to freely express their ideas and to provide information that the interviewee thinks is important. This is done by asking open-ended questions and by probing interview participants for more information when appropriate (Bernard, 2002). Given this flexibility, the researcher can obtain both unexpected significant information, as well as answers from their prepared interview questions. While conducting semi-structured interviews, researchers usually take field notes and audiotape interviews for later analysis.

In this particular study, I conducted semi-structured interviews with 23 of my 29 participants. The only participants with whom I did not conduct semi-structured interviews with were the five parents that I came in contact with during the community outreach sessions. With these participants, I collected data through informal conversation.

In keeping with Kvale (1996) and Bernard's (2002) suggestions for conducting semi-structured interviews, I used set of prepared questions (see Appendix C) to help guide my interviews. I also took field notes and, whenever possible, I record my conversations with research participants with a digital tape recorder. None of the research participants declined to be audiotaped in this study.

In addition to conducting semi-structured interviews, I conducted two focus group interviews. A focus group consists of selected individuals who are brought together to discuss a specific topic (Benard, 2002). Under the guidance of a moderator, participants either respond to a series of questions in turn, or they freely discuss their feelings and opinions about the topic in question. In keeping with Bernard's (2002) suggestions for conducting a manageable focus group interview, only three-to-eight participants were

interviewed at one time. My first focus group interview was with the eight individuals who were volunteering at the school. The second focus group also consisted of True Leaves volunteer staff; however, this interview was smaller, with only three participants.

Using the interview guide that I had created for my semi-structured interviews, I asked participants to respond freely to my questions in turn. Because of the nature of the interview, I chose to audiotape our conversation. I then transcribed these recordings later. I followed the same protocol with both interviews.

After each interview, I sent of copies of my transcriptions to the participants in question. Participants were then given the opportunity to provide feedback after they checked my notes and transcriptions for their accuracy.

Participant and Researcher-Created Documents

To gain a deeper understanding of the process involved with translating the concept of sustainability into a plan for educational practice, I also collected a variety of participant-created documents. According to Merriam (1998) participant-generated records are those materials that are physically created by the subject(s) in question. Some examples of the documents that I collected in this study include: a copy of the school's vision statement, a copy of the school's curriculum guide, the school charter, several articles on sustainability and sustainability education written by the school founders, and e-mail correspondence from the school founder and principal. All documents were obtained with permission.

Researcher generated documents (e.g., double-entry field notes made in observation, e-mail correspondence with research participants, reflective journal notes,

photographs of the school site, and notes on emerging themes,) were also created and analyzed in this study for the purposes of triangulation.

Direct Observation

In addition to conducting interviews and collecting research documents, I also had the chance to observe research participants on multiple occasions. More specifically, I observed five administrative planning meetings, six school wide planning sessions and four community outreach forums. At these meetings, I took double-entry field notes in short-hand (Sunstein and Chiseri-Strater, 2006) . I also drew maps illustrating participant relationships, a technique suggested by Creswell (2007). I then compared these notes and maps to my other findings for the purposes of triangulation.

After each meeting, I sent of copy of my field notes to the participants involved in each meeting/session/forum. Participants were then given the opportunity to provide feedback after they checked my notes and interview transcriptions for their validity. All feedback was positive and no changes were made to either my notes or to my interview transcripts as a result of this process.

Data Analysis

In qualitative research, it is not uncommon to begin data analysis before the completion of the study (Merriam, 1998). At the end of each day that I was in the field, I took time to read through my collected notes and observations and make reflective memos about the information that I had discovered. I did the same with each interview

that I transcribed—and with the participant-created documents and audio-visual materials that I collected in this study.

Employing a process consistent with the work of Wolcott (1990), Miles and Huberman (1994) and Creswell (2007), I began my formal data analysis by organizing my collected information into four general categories: 1) collected documents, 2) transcribed interviews, 3) field notes made from direct observations and 4) collected audio-visual materials (e.g., emails, photographs, etc.) This gave me an overall picture of the wealth of information that I had collected. I then read through this information and took anecdotal notes to record my second impressions of the data.

After this second pass through, I began analyzing the data through manual techniques such as classifying coding, memo and note taking and by using constant-comparative techniques (Creswell, 2007). During this process, I found myself coming back to both my original observation notes and memos, time and time again, to help me re-immerse myself in the context of my data collection. This was particularly helpful, as this thesis has been written over quite a long period of time. I also read many of the transcriptions through several times and listened to many of the taped interviews more than once.

Throughout my analysis of data, I also composed narrative vignettes that I would later use to present my findings. This was partly an attempt to try to describe what I was feeling and discovering, but it was also my attempt at interpreting the data. This process is consistent with the practices recommended by the Merriam (1998) and Creswell (2007), in which they suggest that qualitative researchers "spiral" (p. 96) back and forth between collecting, analyzing, interpreting and reflecting upon data before they write—

always keeping in mind that more data might be needed, both to add to the richness of the description or confirm some impressions that have been made (Creswell 2007).

All in all, four themes emerged from my analysis: *Adaptation, Emergence, Constraint and Compromise*. The first theme relates to how the founding members of this charter school *adapted* elements from various approaches to schooling including, but not limited to: environmental education, ecological education, Expeditionary Learning, Environment as Integrating Context and the small schools movement. The second theme reflects the e*mergent* nature of the process involved with designing this school. The theme of *resources* relates to the external constraints of time and money experienced by the founding members of True Leaves Charter School. Finally, the last two themes reflect the community *resistance* encountered by this group of educators, as well as the structural and theoretical *compromises* they made in order to get their charter school up and running.

Finally, in an effort to put my findings within the context of my theoretical framework, I examined my findings using of Elliot Eisner's (1992) *Ecology of Schooling* as an analytical lens. This allowed to me to understand how the founding members of True Leaves addressed (or failed to address) the five dimensions of Eisner's (1992) *Ecology* in their design planning. It also allowed me to recognize how the different dimensions of the *Ecology* interacted with each other—and how the themes that emerged in my initial pass through of data interacted with the five dimensions. For example, I had the opportunity to understand how the *intentions* of the founding members helped to shape the *structure* of the school. In turn, I was able to recognize how the *resistance* of community members to the school influenced the *intentions* of the founding members.

Ethical Considerations and Trustworthiness

Merriam (1998) notes that a researcher must be "conscious of the ethical issues that pervade the research process" (p. 219). This is true for those involved in quantitative inquiry; however, it is especially true for those involved in case study research. In particular, researchers must inform participants about the purposes of a study and attempt to protect them from any harm. Although the threat of harm toward participants in this study was low, I ensured that precautionary steps were taken to ensure the safety and confidentiality of all participants.[2]

Since the primary concern for harm in this study related to participant confidentiality, all collected data were kept in a secure location at all times. Furthermore, all participants' rights and interests were protected in the reporting of the data. This included the use of pseudonyms and the omission of any possible information that I deemed revealing to participants.

Informed consent agreements were forwarded to seventeen of the twenty-nine participants in this study by myself (through email) or via the gatekeeper of this study prior to my arrival at the research site. Upon arrival and throughout the study, I asked participants for verbal consent prior to interviewing and/or observing them. I also had them sign an informed consent agreement.

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[2] Because of the political nature of the school community, participant confidentiality was of utmost importance in this study.

Participation in this case study was voluntary, and participants were given the option to withdraw from the study at any time without penalty. None of the participants chose to withdraw.

Two ethical considerations arose during the course of this study. On several occasions, I was asked to give my opinion about whether or not the founding members were on the right track in the development of their school-wide model of sustainability education. I was also asked to be a sympathetic ear when participants were feeling stressed during this study. Although I did listen, in both situations, I explained that my role in this study was that of observer—and that, by giving my opinion, I might bias the results of this study. After repeating this statement twice, I was no longer asked for my opinion.

The second ethical consideration relates to the presentation of data in this study. In an effort to increase the readability of my findings, I consciously chose to cleanup the quotations of my research participants. Quotations were written down and transcribed verbatim during the data collection process; however, I chose to delete many of the "ums" and "ers" that frequently punctuate human conversation in my write-up. This decision is in line with the theory and practice of Glesne (2005), who argues that it is the judgment of the researcher-as-writer with respect to how many "you knows" the reader should "suffer" through (p. 171). My decision is also in-line with the research of Corden and Sainsbury (2006) who declare that cleaning-up one's data reduces the likelihood of readers making negative judgments against participants because of their speech. All researchers must make decisions about data representation. One option is to stay true to

every intonation of speech. Another is to represent the spirit of the dialogue. I chose the latter.

Limitations

One limitation of this study was the fact that I could not reside at my research site throughout the course of data collection. The True Leaves Charter School was located in another state (a day's travel from my own location), and so I was only able to visit my research site four time occasions. In turn, I was limited in my ability to observe research participants directly at all administrative meetings, educational planning sessions and community outreach forums.

To mediate this limitation, I arranged for bi-weekly phone interviews to be set up with my primary research informants. These included phone conversations with the school founder and principal, as well as phone conversations with two volunteers, the urban-outreach coordinator and a board member from the local school district. I also arranged to receive weekly email updates from the school founder. I communicated with other research participants via email, as well.

Frequent checks of the school's website also helped me to mediate the distance between myself and my research site; and I was able to stay in touch with the pulse of the community's reaction to the school by checking for daily newspaper reports about the school's opening.

Another limitation of this study was the fact that I was unable to observe the creation of the charter proposal. Given that my study focused on how the founding members of a charter school translated the concept of sustainability into educational practice, it would have been helpful to observe the creation of this document.

Nevertheless, I mediated this limitation by conducting in-depth interviews with the author's of the charter proposal to gain a better understanding of how their intentions were manifested in this document. I also studied the charter document in depth.

Because the goal of my research was not to identify "abstract universals" (Erickson, 1986, p. 130) or produce generalizable knowledge about planning for sustainability education—but rather to provide my readers with a "thick description" (Geertz, 1971, p. 21) of the processes taken by the founding members in designing their school—*generalizability* is not a limitation in this study. In the end, I hope that my explanation of the major themes in this study will provide my reader with a guide for anticipating how others might choose to design sustainability education (Eisner, 1994).

My Role as a Researcher

Having spent a good portion of my childhood outdoors, I have acquired what one might call an affinity for nature. In fact, I consider the time I spent playing in the forests and marshland of northern Illinois—and the knowledge and joy that I gained from doing so—as having shaped my attitudes about nature and about environmental issues.

Akin to Aldo Leopold, I consider myself to be a steward of the land that I inhabit. I consciously choose to live *right* by the land, and thus I behave differently than other people I know. For example, unlike a majority of city-dwelling neighbors, I choose not fertilize my lawn in the spring and fall—knowing that most of the fertilizer will end up in the city sewer system and—eventually—in the local reservoir which provides my tap water. My wife and I are obsessive recyclers, and we keep our use of the furnace and central air-conditioning systems to a minimum, and we rarely use our dishwasher. For

fun, I read outdoor adventure books, field guides and essays on current environmental issues. I believe in global warming, and I believe that we are near a tipping point in our ability to reverse its effects. Thus, my formative experiences outdoors as a child have influenced who I am as an adult, in both my personal life—and in my professional life as an educator.

I am a staunch supporter of experiential education and outdoor learning, and I believe that students need to develop the attitudes, values and behaviors that will help them to live well with the earth. I also believe that students should be encouraged to participate in service-learning opportunities whenever possible, and I think they should be encouraged to take up pro-environmental initiatives in their local and regional communities.

According to Merriam (1998), researchers involved in qualitative inquiry must be cognizant of their personal beliefs. This is because human instruments are just as subject to validity concerns as data collection instruments (Merriam, 1998). Researchers involved in qualitative inquiry must be able to reflect upon the decisions they make throughout their study, in order to minimize the influences of their biases (Merriam, 1998).

It was with a conscious recognition of my affinity for the outdoors and my support for sustainability education that I entered this study. And, though it would be easy to criticize my role as researcher because of my beliefs, I would argue just the opposite—that my love for nature and the outdoors (and my conscious effort to live sustainably on this planet) have allowed me to act as a more informed researcher. In her discussion of the roles of the qualitative researchers, Merriam (1998) states that

researchers involved in qualitative data collection and analysis must be able to comprehend the issues related to the question at the heart of one's study. Merriam (1998) also states that researchers should have the ability to interpret and filter information throughout data collection and analysis. Given my passion for nature and my specialized knowledge of developing environmental, ecological and place-based educational curriculum, I believe that I was fully prepared to conduct this study. In fact, one could argue that a researcher with less passion and knowledge of sustainability-related issues might not have been able to interpret the data collected in this study—or even recognize the complexities involved with developing a plan for educational practice rooted in sustainability.

CHAPER 4

FINDINGS

Overview

In this chapter, I discuss the findings of this ten-month case study. I begin with a description of the context in which study took place. I then describe how the founding members of the True Leaves Charter School created a personalized model of sustainability education by adapting ideas and practices from the fields of sustainability and social justice, environmental education, ecological and place-based education, expeditionary learning, inquiry-based learning, Montessori education and the small schools movement. An examination of the approach taken to opening this school follows. I end this chapter by discussing how the realities of enacting a charter school in a public school setting led to theoretical and structural compromises. This discussion reflects the four major themes that surfaced in my analysis of data: A*daptation, Emergence, Constraint* and *Compromise*. Throughout this chapter, I use Michael Fullan's (2007) conceptualization of the *change process* and Elliot Eisner's (1992) conceptualization of schools as *ecologies* as lenses for my discussion.

Landing

From the window of the tiny commuter plane, the first things I notice are the trees. *Acer saccharum*. *Laurus nobilis*. *Fagus grandifolia*. *Lithocarpus*. They blanket the river valley and surrounding range like a quilt tossed out. *Pinus Strobus*. *Prunus Serotina*. I lean forward to get a closer look.

The trees are alive and bursting with fall color. Pumpkin orange. Squash yellow. Cranberry red. Cucumber green. Cooler days and apple-crisp nights have settled into the region, and the change has brought with it all the colors of a fall harvest.

My heart leaps at the sight of fall foliage. The colors bring back memories of my Midwest childhood—of trips to pumpkin patches and hayrides, of apple picking and jumping in leaves. I lean back in my seat and think about the events that shaped who I am.

When I was five-years-old, my parents moved our family from the East Coast to the suburbs of northern Illinois. We moved into a four-bedroom house on a cul-de-sac surrounded by woodlands and marsh, and from then on I spent most of my time outdoors. When I was in elementary school, the sprawling yards and wooded lots of my street were my playground—and as I grew older, the forest preserve a mile away was where I grew up. I learned how to build a fire for the first time in those woods, and when I entered high school and joined the cross-country team, the forest preserve was where I trained. I still go back to that forest preserve from time-to-time—and though I have moved halfway across the country, I still consider the Midwest to be my home. My time outdoors shaped who I am and, in a way, it is one of the reasons why I am flying back east to conduct this study.

Returning to my looking glass, I notice the city for the first time. It's a small-to-medium city. 100,000 residents or so. A town, really. To the west of a small downtown area is a large industrial park. To the east, a series of craggy bluffs and a sprawling green hillside upon which the university sits. A winding river snakes through the outlying tree-

lined neighborhoods of the city and empties into a massive freshwater lake just to the north.

The lake was originally formed in the Devonian Era—approximately 400 million years ago—back when fish first evolved legs and when the first seed-bearing plants were beginning to take root. It's the result of glacial moraine and receding Pleistocene ice-sheets. The earth underneath is rich with the fossilized remains of bison and Stag-Moose. Lions and Short-Faced bears. Voles and armadillos.

Diana (pseudonym), the founder of the True Leaves charter school, would later tell me how the lake was formed: "When the ice sheets receded…they left those huge boulders over there." She points to a field of glacial moraine in a park at the northern edge of the city. "Then the ice melted, and the lake formed behind it. It's been the lifeblood of the region ever since."

Indeed. For centuries, the lake has supported the existence of human and non-human inhabitants alike, including over a hundred types of fish and approximately three hundred species of birds. "Each year, scores of migrating Canadian geese stop to rest in the mudflats and marshes around the city," Diana explains. "And, in the springtime, flocks of Western Sandpipers return to feast on small-mouth bass and freshwater trout."

The return of the Western Sandpiper is a success-story for conservationists in the region. With help from the State Department of Natural Resources, local conservation groups have been working hard to re-populate the species. They have also been working to restore the bald eagle population, which used to thrive on the lake's abundance of freshwater trout, until exposure to DDT in the late 60's nearly eliminated the species.

Recent statistics published by the state DNR; however, show that bald eagles are on the rise. Another conservation success-story.

I settle back into my chair again and pull out my field guide. I purchased it explicitly for this trip. According to the guide, the most populous non-human inhabitant of the region is the white-tailed deer (*Odocoileus virginianus*). Once on the verge of extinction itself, the white-tailed deer population has made a dramatic comeback in recent years. In fact, on the first day of my visit, a front-page newspaper article announced that the city council was considering placing sharpshooters in downtown parks and the surrounding woodlands to help control the out-of-control population.

Of course, the region is also home to a variety of wildlife whose numbers are less rampant, including: the North-American Beaver (*Castor canadensis*), the Fisher Weasel (*Martes pennanti*,) the American Snapping Turtle (*Macrochelys temminckii*) and even the occasional Black Bear (*Ursus americanus)*.

Archeological evidence suggests that the first human inhabitants settled in this area as early at 1000 A.D. Attracted to the region by its temperate climate, abundance of wildlife and by convenient access to inland waterways, these groups of people remained the sole human inhabitants of the area until the late 15th Century.

That's when English and French trappers began to populate the river valley—attracted, once again, by the lake and all that it could provide. In the late 18th Century, ex-Revolutionary War solders discovered the region. Armed with land grant certificates issued by their newly formed government, these patriots quickly pushed the American Indian and European settlers out of the region. To date, many of the local land titles on record with the county supervisor have names like Winslow and Deacon, Humbolt and

James. It wasn't until the late 19th Century; however, that the town itself became an official entity of historical record. The decision to include the city as a destination stop on a major railroad line allowed this to happen, as did the decision to make the town home to one of the first private land-grant universities.

Built into the grand cliffs overlooking the eastern half of the city, this university was one of the first institutions of higher learning to offer majors in every field of study—from classics to the sciences, to the theoretical and applied. The decision to offer a more comprehensive menu of coursework was groundbreaking, given the highly specialized nature of most colleges and universities at the time. The university was also one of the first private, non-sectarian institutions to open its doors to both men and women in the country.

Today, the city is home to a total of four colleges and universities and over a third of the town's 100,000 residents are full or part-time students (www.city-data.com, 2010). The most common occupation for both men and women living in the town is education (31%) and over 50 percent of residents hold an undergraduate or graduate degree (U.S. Bureau of Labor Statistics, 2010).

Before the local colleges and universities took over as the main employer, the city was primarily an agricultural and manufacturing town. Settled in the foothills of a coal-rich mountain range and having been established as a major stop on the railroad, the town thrived on steel and coal production until the late 1800's, when changes to the railroad line and a dwindling supply of anthracitic coal forced the local residents to reinvent their commercial identity. In the early 1900's, the town gained a national reputation for manufacturing guns and clocks—and for a brief period it was home to several auto

manufacturing plants. Today, the city's main employers are energy companies and biotechnology firms, yet agriculture continues to remain a staple of the local economy (the city is surrounded by over 1,000,000 acres of rich farmland). The town also remains as an important inland shipping port for suppliers in the region.

In 2009, nearly 40% of the town's 100,000 residents were found to be living below the poverty line, (U.S. Bureau of Labor and Statistics, 2009). Granted, 18% of this population identified themselves as college students without a full-time job. Nevertheless, the schism between professional and working-class families in the town is apparent and, interestingly enough, mirrored by the town's geography.

Take, for example, the contrast between the city "Flats" and city "Heights" neighborhoods. Primarily home to working class families, the section of downtown known as "Flats" is comprised of aging ranch homes and abandoned warehouses.

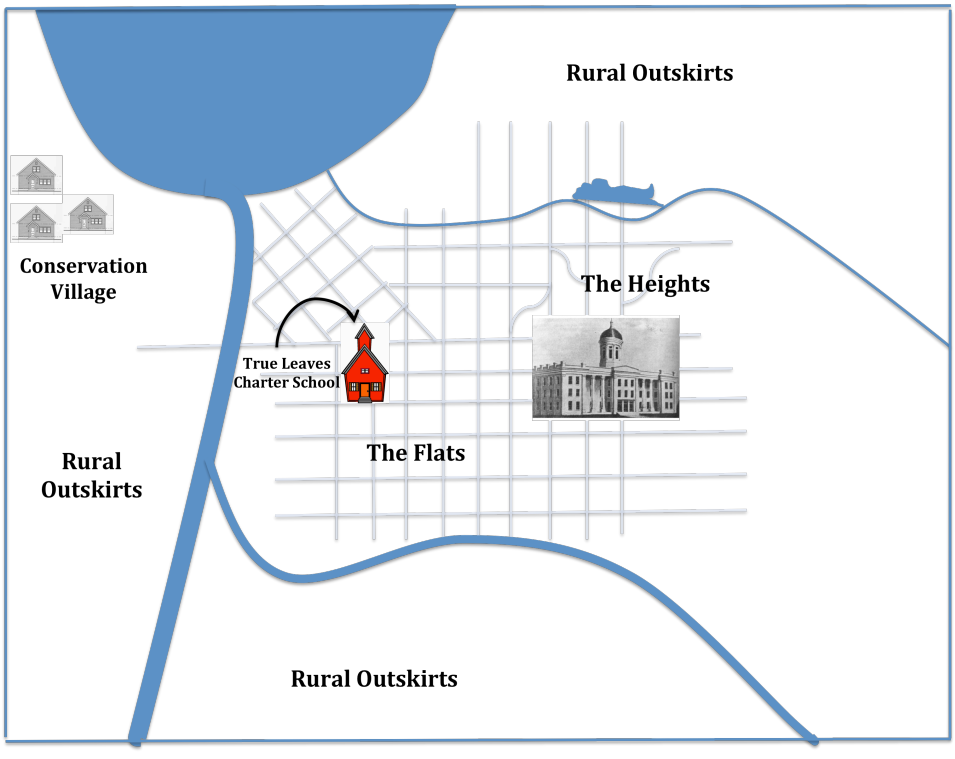

Figure 8: Map of Town and Surrounding Area

Railroad tracks lead to nowhere in this part of the city, sidewalks are almost non-existent and the absence of streetlights makes it difficult to walk at night (Figure 8).

In contrast, the city's "Heights" neighborhood (situated on the high bluffs overlooking the city) is home to a majority of the town's white-collar families. The university is located in this neighborhood, as is the town's second major college and the homes of the town's mayor, the town's public school superintendent and several of the city's leading businessmen and women. A stroll through this neighborhood reveals well-maintained turn-of-the-century Victorian mansions and well-built colonials. The landscapes are sprawling and the sidewalks—made from brick and cobblestone—are numerous and well lit.

According to the most recent census data, 15% of the town's population identify themselves as either Black or Hispanic, 14% as Asian and 1% as American Indian or Pacific Islander. 70% of the town's people are Caucasian with European ancestry (www.city-data.com). According to Diana, a majority of the town's minority population lives in the neighborhood called the "Flats", whereas a majority of the white residents live in the "Heights".

For the past twenty years, the city's downtown area has suffered from what Diana calls "a lack of economic stability." In the early 1990's, two major national chain stores opened up on the outskirts of the city and many of the locally owned shops downtown closed because they couldn't compete. As Diana puts it, "This left downtown largely uninhabited after 5 p.m." Incidents of theft and robbery increased, and the city's homeless population rose by 14% (www.city-data.com). In an effort to reverse these

trends, the city began a concerted effort to revitalize its downtown in 1998. Tax-abatements were offered and eventually things started to pick up. "Downtown is now home to pricy boutique stores and art galleries—and the city's pedestrian mall is home to an assortment of stylish restaurants and trendy bars," Diana explains.

In a continued effort to revitalize its economy, the city also involved itself with the sustainability movement. In 2003, one of the local colleges hosted a community workshop on sustainable management systems and, in 2004, this workshop evolved into a community "summit" where multiple proposals for sustainability initiatives were voted on by the city council.

One of the approved proposals created a citizen-based organization designed to support sustainability initiatives throughout the county. Since 2004, this organization has funded the establishment of a citywide composting and recycling program, an educational outreach program that encourages city residents to live "sustainably", an inter-generational community pizza-baking project, a nature study program for elementary school students and a community quilting-project.

In an effort to protect over 175 acres of native prairie, including 55 acres of conservation easement from future development, the county also made a deal with local land developers to build an intentional community on the outskirts of town. Named "Conservation Village" (pseudonym), this intentional community is home to 85 residents and two working farms. The residents run an educational outreach program, a local farm-to-work program (where businesses can sign up to receive fresh produce on a weekly basis) and a nature preserve, where elementary school children can come to learn about the function of prairie grass in the larger ecosystem. "By agreeing to allow the

developers to build on a small portion of the land, the county was able to preserve about 180 acres of restored prairie," Diane told me. "It's a gift for future generations."

In 2007, the city and county continued with its efforts to become a leader in sustainable living by hosting to the 1st Annual Conference on sustainable transportation. Environmental scholars and entrepreneurs from around the globe were invited to share their ideas on how to reduce accidents, lower congestion and create a transportation system that produced less pollution. Attended by over a hundred participants, the conference was considered a success by its sponsors, largely because it opened up important conversations about how to live sustainably. For Diana, however, the highlight of the conference was when the town's mayor announced that his city would become one of the first North-American towns to fully embrace pod car technology.

Akin to small train cars or ski gondolas, pod cars are personalized, automated vehicles that operate on a complex network of specially built guide ways. Vehicles are sized to fit one to six people, and they are designed for point-to-point travel. In an interview that I conducted with Diana weeks before my first visit, she summed up the key benefit of having a pod car system over another type of mass transit system (e.g., train or bus): "[Pod cars]…allow residents to enjoy the freedom and mobility of an automobile without the pollution." In the late 1960's, Morgantown, West Virginia was the first city to successfully utilize pod car technology. The pod car system that was installed on the college campus there is still in operation today. "The mayor plans to use the Morgantown system—and systems in Sweden—as models for a city-wide public transportation system."

Looking down at the town through my tiny looking glass, I try to imagine what this pod car system might look like. *Like the monorail system at Disneyworld? Or like the elevated train system in my hometown of Chicago?* Then the plane shifts, and I am gifted with a view of the countryside and the massive, freshwater lake. For a moment, I think I see Conservation Village—a tiny cluster of townhomes on a vast expanse of prairie—but then the plane shifts back, and I can't tell for sure.

We circle back over the city and pass the university where the conference in sustainable transportation took place. *If there's a place where a charter school rooted in the concept of sustainability could succeed, it would be here,* I think. I stretch my legs out and lean back in my seat. But then, it's easy to have such thoughts at 15,000 feet.

Part of Something New

"The village has two working farms and an orchard," Diana says, as we walk along a crushed, gravel pathway on the outskirts of Conservation Village. Diana is one of the seven founding members of the True Leaves Charter School, a "new, small public high school intended to empower young people…to create just, democratic communities and thriving green economies that yield innovative solutions to society's most pressing social problems" ([True Leaves] Charter, 2008). She will be the school's principal when it opens in the Fall of 2009. I look down across the hillside of restored Mesic-prairie and see two plots of withering field corn stretched out in an arch at the bottom of the hill. The plots are sub-divided by a line of tall apple trees, three rows deep.

"We have our own root cellar too." I turn, as she points to a brightly, painted door built into a mound of earth. "The children learn canning there." I smile and nod

and look around. It's a cold, October evening. Early twilight. The sun is setting behind the range of mountains to our west and darkness has begun to silhouette the valley.

As we approach the heart of the village, porch-lights come on. Diana continues. "The village has 38 houses in all. The first subdivision was built in 1992. It's just behind those trees over there." She points to a stand of tall birch and Douglas fir. "That division is named, 'Song.' This subdivision, the one where you'll be staying, was finished in 1998. We call it 'Frog.'"

Diane and I enter a cirque of look-alike townhouses—each with a narrow, wooden porch and a black, steel veranda protruding from the second floor. The architecture is modern-day craftsman. The construction, post-and-beam.

"Well, here we are," Diana declares. I look up at a brightly illuminated sign. It says: "Goosetown Bed and Breakfast." Knocking on the heavy, three-paneled door, Diana says, "I'll introduce you to Sarah."

As we wait, I ask, "When did you blacktop the walking path…it looks brand new."

"Actually, that's funny you ask. There was a pretty, heated debate over whether or not we should pave it or just keep it as gravel. Some people liked the 'look' of gravel. Others said that asphalt would be safer in the winter. [In the end,] the residents voted to pave the walkway. Personally, I think gravel is safer."

At that moment, Sarah (pseudonym) answers the door. She is a short woman with milk-white skin and curly, reddish-blonde hair. "Sarah, this is Todd." We exchange pleasantries and Diana announces that she'll be back in an hour to take me to the community dinner. "If you need anything, just call or stop by. I live right over there."

She points to a doorway similar to the one in which I am standing. "Great," I say, as she leaves us.

"Welcome to the Goosetown," Sarah announces, inviting me into her home. It's a two bedroom, two-story townhouse with a small kitchen and a tiny sitting area that overlooks the mountains. After I sign in and she goes over the house rules, Sarah tells me about the story behind the bed and breakfast. "We all thought it would be a great way to show off our intentional community. People just kept asking, *'What are you doing out there? Can we come to visit?'* Human curiosity, I guess. So I said that that I would turn my house into a bed and breakfast…[To date,] we've had over five-hundred visitors. People come from all over to see the community and spend time working on the farms. We've had visitors from [as far away as] Australia and New Zealand."

I ask Sarah why she moved to Conservation Village. "Well, after my husband died, [three years ago,] I was looking for something different. The house we lived in was way too big for me and my children were all grown. I felt like I needed something new. I guess I just wanted to be part of something."

After touring the downstairs, Sarah takes me upstairs to my room. It's a tiny, 8 x 8 room with a full-sized bed and a small nightstand. "There's popcorn and hot chocolate on the dresser over there. If you want to make some, just use the microwave in the kitchen. Here's the bathroom." She steps into the small, attached bath and turns on the light. A recessed fan spins to life. "Please re-use the towels during your stay." I agree to abide by her request. "[Well,] unless you need anything, I'll let you settle in."

After Sarah leaves, I toss by bags on top of the bed and acquaint myself with my new surroundings. Although cluttered, the room is neatly kept and neatly adorned—

decorated with country-style antiques. An old-fashioned sewing machine sits on a table next to the dresser with the hot chocolate and popcorn. A black, walnut rocking chair with a hand-stitched pillow that says, "Home Sweet Home" stands in the other corner. A TV with rabbit ears rests at the foot of the bed. *I wonder if they get cable out here.* Moving over to the window, I pull up the shade.

The sun has set fully now behind the mountains, and the evening sky is without clouds. It's a deep azure blue tonight, dotted with twinkling stars. The mountains stand in black relief. *Maybe cable's against the rules? Is cable even sustainable?* My curiosity piqued, I walk back over to the television set and pick up the remote. Pressing the "On" button, I wait for the screen to come to life, then scroll through the channels. *They do indeed have cable out here in Conservation Village*. Smiling, I contemplate the absurdity of my line of thinking. *Why wouldn't the residents of Conservation Village have cable? Sustainability doesn't mean giving up technology. And it's doesn't mean having to live a pauper's life.* I shut off the TV and pick up a book from the nightstand. It's a copy of Rachel Caron's *Silent Spring,* the book that re-ignited the conservation movement and led to the banning of DDT. Staring at the green and white cover of the 40th Anniversary edition, I am reminded of bald eagles. Then I think back to what Sarah said. "I guess I just wanted to be part of something…something new." I smile to myself and crack-open the book.

A School is Born

Conservation Village sits on 175 acres of restored prairie, on a hillside just east of the city limits. It's an intentional community designed to provide residents with an alternative model for suburban living. According to Diana, the Village is "part of a

global movement [that's in search] of a saner, more sustainable, human culture." It's a reaction to the "loss of community in people's lives," she explains. "An attempt to re-establish community values and ideals."

The 85 residents of Conservation Village take turns preparing meals for each other. They share laundry machines, TVs, even cars, and they take turns completing the chores necessary to sustain good relations in an intentional community. "It's expected that you volunteer two to three hours of your time a week. You can help out with finances, building maintenance, community governance or with future projects…whatever your talents might be."

In the future, the residents of Conservation Village hope to build an on-site biological wastewater treatment plant, a wind-power turbine and a center that provides educational out-reach opportunities to city residents. "We [also] want to make the village more accessible to families who need affordable housing…and increase the diversity of our community."

Originally, the builders tried to encourage socio-economic and cultural diversity by offering a range of housing prices. Unfortunately, this plan didn't work. In fact, when I ask Diana about the demographic make-up of the community, she explains that a majority of residents are "white and middle-class." "There are only two families of color living in the Village," she continues. "We hope to change that."

Over 80% of the 175 acre site is designated as green space, 55 acres of which is conservation easement held in trust by a local community group. In addition to the two working farms, there is an orchard, a root cellar and a stable for horses (although no one in the community owns a horse). A five-mile, gravel walking-path connects the two sub-

divisions. The nearest road is half-a-mile away.

My first night in the Village, I am invited to a community dinner. The meal is held at the Community Center located directly between the two sub-divisions. It's a large, craftsman style building with a corrugated tin roof and wide picture windows cut from green glass. Diana takes me to dinner early, so that I can meet some of the local residents.

As we walk into the entryway and take off our coats, I notice two rooms. To the right is small playroom scattered with toys. To the left, a sitting room with two chairs and a couch. We walk past the darkened spaces and into the kitchen. It's a commercial-style kitchen with an open floor plan and six stainless steel workstations. Canned lighting illuminates the room.

At one of the stations, a woman stands at a gas stove hovering above a large, steel pot. Another woman sets down a stack of plates on a long, wooden table in the center of the room. Three others residents stand at a butcher-block table mixing salad greens.

"It's buffet style," Diana tells me. "You put your money in there (She points to an index card box), and then you get in line." The workers look up. "Hi everyone, this is Todd," Diana announces.

We exchange greetings and talk about what they're making. Tonight's menu will consist of a vegetarian stew with homemade Cibatta bread and house salad. "So you're here to learn about [True Leaves]?" a woman with grey hair and round glasses asks.

"Yes," I reply.

"Has Diana told you about how it all got started?"

"A little."

"Well, [if not,] there's a newspaper article over there on the bulletin board all about it." Rolling up her sleeves, the women itches her nose with the back of her hand. "But I'm sure Diana can tell you the whole story. It was basically her idea."

Later on, Diana *would* tell me the whole story. "I had the idea for the school just after I moved here [in 1992]. But I was teaching full time and taking night classes for my Masters, so I just didn't have time…It wasn't until 1998, [after I started teaching classes in sustainability education at the local college] that I decided to think about it as a possibility. Then I met Robert in 2002."

The Robert she is alluding to is Robert Fischer (pseudonym), an Associate Professor of Biology at one of the town's local colleges. "I met Robert when I was teaching. One night we were talking about sustainability and my idea for the school just came up."

The first official meeting of the founding board of the True Leaves Charter School was held in September of 2005. Diana explains how she was able to enlist the help of several important members of the community, including two local businessmen, a female attorney, an Associate Professor of Business Management from another local college and a senior fellow of a local non-profit "[working] to help colleges and universities expand their efforts to make sustainability and social justice a foundation of learning and practice."

In July of 2007, Diana and Robert started writing the charter for the school. "I don't think either of us truly understood what we were getting into," she explains. "The writing process took us about three months. [Robert] and I enlisted the help of a local,

high school Social Studies teacher [who was knowledgeable about sustainability] to develop the curriculum but, really, it was just us."

At their final approval meeting with the state chartering institution, Diana explains how she was a mix of confidence and uncertainty: "I was pretty sure that we'd get approved. We'd contacted the founding members of other charter schools in the area [and visited their schools], and we knew that our curriculum was pretty solid. It's just that, when you start a school, especially one in sustainability, there are a lot of unknowns." Before granting their approval, the chartering board asked Diana and Robert to revise their plans for governing the school and for evaluating student assessment. "Aside from that, they were impressed with our plans. I guess you could say that was the day [True Leaves] was born."

Adaptation

The following is a description of how the founding members of the True Leaves Charter School created a personalized model of sustainability education by adapting ideas from the fields of sustainability and social justice, environmental education, ecological and place-based education, Expeditionary Learning, inquiry-based learning, Montessori education and the small schools movement. Elliot Eisner's (1992) conceptualization of schools as dynamic *ecologies* constructed of five dimensions (the *Intentional*, the *Organizational*, the *Curricular*, the *Pedagogical* and the *Evaluative*) is used as a framework for my discussion.

The Intentional

> *[True Leaves]Charter School will empower young people as citizens and entrepreneurs that create just, democratic communities, and thriving green economies that restore the natural world that sustains us. Excelling in both traditional and innovative curriculum areas, our students will learn actively, think critically, and solve problems creatively and collaboratively, developing the knowledge and skills to redesign our communities for social, economic, and ecological sustainability. We will support all students in defining and realizing their goals and aspirations, and in recognizing their ability to take leadership in improving the lives of their families and community. We will put the best available tools-and the power of informed optimism-in the hands of tomorrow's leaders.*
>
> *--[True Leaves Charter School] Vision Statement (2008)*

* * *

The café is located in the middle of a long arcade of shops, in the basement of what was originally the town's first high school. I ponder this coincidence, as I take a seat in the corner of the room.

It's a cozy space, warmly painted in rich earth tones and softly lit with globe lighting. I shrug off my coat and take out my notepad and tape recorder. A waitress comes over to ask if I want something to drink. I order coffee. Other than a young couple sitting at a table across the room from me, the café is empty.

As I wait for my coffee, I look around the room. *This is a good place for a first interview,* I think. *Warm, friendly, inviting. Private, but not too private.* I check my tape recorder to make sure that I have enough battery life. My coffee arrives, and I review the interview questions that I have scribbled in my notebook:

- *How did you get involved with the opening of this school?*
- *What are the aims of the school?*

- *Let's talk about the concept of sustainability. How do you define sustainability?*
- *What is sustainability education?*
- *What are the essential elements of a school that plans to educate students for sustainable living?*

The list continues.

I take another sip of my coffee and double-check my questions. I am using Elliot Eisner's (1992) conceptualization of schools as *dynamic ecologies* as a framework for my study—and the questions that I have carefully constructed reflect the first dimension of Eisner's (1992) ecology: *the Intentional. What are the specific aims of the* school (at the heart of the study)? Eisner (1992) asks in this dimension and *What are the aims of the curriculum?*

At half past eight, Diana (pseudonym) arrives dressed in a heavy, gray overcoat and a red scarf. She is a short woman, with salt and pepper hair and round glasses. We make eye contact, and she heads in my direction.

"Are you, Todd?" I stand up, extending my hand. "Yes."

"Diana," she says. We shake hands. Her grip is firm and quick. "Is this table ok?" I ask.

"Fine, just fine," she replies. We sit down. Then sloughing off her heavy, woolen coat, she asks, "So, when did you get in?"

"Yesterday afternoon." I tell her about my trip from the Midwest. The three plane rides. The three flight delays. She laughs, as if she knows exactly what I am talking about. The waitress comes over to the table and asks if she would like something to drink. Diana nods, glancing at my coffee. "I'll have a cup, as well."

We sit in awkward silence for a moment. Then Diana announces, "So, if you don't mind, I thought you could shadow me this morning…then I could pass you off to Jennifer. She's a wonderful woman who I'm considering hiring as our business manager."

"Sounds great." I look up at her, then away. The young couple across the room is paying their bill. The waitress arrives with Diana's coffee, and she takes a sip. We are quiet, again.

"So you must want to know what True Leaves is all about," Diana exclaims. It's more of a statement than a question—and I can tell that she is trying her best to keep the meeting purposeful.

"That would be great. Would you mind if I took some notes?"

"Not at all," she smiles.

"I have a tape recorder here too, in case I miss anything."[1]

"That's fine. Leaning back in her chair, she adjusts her gold-rimmed glasses.

"Well, the school is modeled after the ideas of Stephen Sterling[2]. Are you familiar with him?" I say that I am, but ask her to tell me more. "Well, it's all about a paradigm shift. About getting people to think differently…in terms of what education is for and how we can live sustainably." I nod and scribble this down in my notebook. She

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[1] Although participants granted the use of recording equipment when they signed their informed consent agreements, I always asked if they felt comfortable being audio-taped.

[2] Sterling coined the term "sustainable education" for education that "requires a change of educational culture, one which develops and embodies the theory and practice of sustainability in a way which is critically aware. It is therefore a transformative paradigm which values, sustains and realises human potential *in relation to* the need to attain and sustain social, economic and ecological well being, recognising that they must be part of the same dynamic (Sterling, 2001, p. 22).

continues. "We, as a society, need to move beyond ourselves…and realize that we're part of a larger ecosystem…We also need to recognize that [the earth's supply of] natural resources are limited. But it's more than that. It's about social justice and working to build a healthy community."

"So then how does that translate into educational practice?" Diana picks up her mug to take a sip of coffee then sets it down. "Good question," she replies. Then after a moment, she says, "…the key question in sustainability education is '*How do we support healthy people?'* Healthy people need healthy social relationships, a healthy economy, and healthy natural systems to support them…so the purpose of [True Leaves] is to transform student thinking and educate students in a way that provides them with the knowledge, attitudes and behaviors [they will need] to become healthy world citizens."

According to the school website, this also involves "building young people's competence as systems thinkers who are able to understand the complex dynamics of the contemporary human-earth situation" (True Leaves Charter School, 2008). When I ask Diana about this online description of sustainability education, she added, "Sustainability means different things to different people. We know that our climate is changing, poverty is on the rise, and that two-thirds of the ecosystems that support human life are in decline…We know that a shift in how we think and how we prepare 'tomorrow's leaders' is not just necessary, but critical. These are the issues we are trying to address at [True Leaves]."

Throughout this study, I heard a similar refrain echoed by the other founding members of True Leaves. One True Leaves board member explained, "Sustainability involves the interaction of economies, societies and the environment...and education for

sustainability involves a conscious attempt to understand the interaction between these three spheres." Another board member put it this way, "Many people hear the word sustainability and think 'Trees' but, really, it's more than that. It's about enacting second and third order change."

In his analysis of change in organizational systems, Levy (1986) defines first order change as "surface level change" (p. 4) or the type of change akin to compliance. Instead of participating in the actual change, those who accept first order change give the appearance of change—in an effort to avoid that change by relieving symptoms. Essentially, people wishing to avoid real change modify their behavior to the point of compliance, without really accommodating the change into their values or system of beliefs.

Second order change goes deeper than that—penetrating the individuals' "genetic code" (Levy, 1986, p. 4). Second order change involves modifying one's behavior but also transforming one's norms and values (Levy, 1986; Hillary, 1990).

Third order change, on the other hand, "encompasses the method of Second order change and adds three dimensions:" 1) An on-going commitment to change, 2) The agreement that changes boundaries do not exist and 3) The agreement "to create no avoidable or foreseeable negative impact" (John, 1992, p. 1).

When I asked Diana about her colleague's remarks on second and third order change, she answered, "Sustainability *is* about economics and society…and about change. It's about transformation. Teaching 'reduce, reuse, recycle'—while powerful in its simplicity—is not what [True Leaves] is about. Nor is it simply learning about the environment. [True Leaves] will directly address a highly unsustainable situation that

many of our community's youth face daily—that being persistently lower academic achievement and graduation rates for students of color and low-income students. By giving [these] students the opportunity to acquire [greater] knowledge and understanding, they can use this knowledge to improve their quality of life…and live sustainably."

In my other interviews with participants connected with the opening of True Leaves, I asked what the term sustainability meant to them. Sally (pseudonym), a volunteer for True Leaves said, "It's not just an environmental initiate. [Sustainability] requires a broad perspective…It's about poverty, social inequality, inaccessibility to drinking water…and it's about using resources in a way so there's enough in the future—that 7th generation idea—and it's about how we live in the world."

Another True Leaves volunteer said that sustainability is about recreating a "balance" in the world: "With the economy and global warming…there's something wrong going on…[Sustainability] requires a shift in thinking, so that we can get that balance back."

Yet another volunteer had this to offer: "The [local] school board president says that sustainability is too narrow of a focus [for schooling], but what he doesn't realize is that sustainability is not just about the environment…[it's about] social justice, as well…a healthy planet requires a health social system and healthy people. If we are not serving the needs of people, then we are not serving the needs of the planet. [People] need meaningful work, healthcare [and] their basic needs fulfilled."

Jennifer (pseudonym), the business manager of the True Leaves Charter School added: "Social justice is a key part of it…because resource use is deferential." Asking her to elaborate on this, she explained, "As long as groups of people are disenfranchised

or exploited then we are living unsustainably. Ultimately I believe that Capitalism is a problem, but you know…whether that's—that's not an explicit agenda of the school—but it's a natural outcome of thinking about living in a sustainable world."

She continued. "It's also about educating students about the natural world and natural systems…And then how social and economic systems interact with the environment…I feel like I have an understanding that is far more complicated than I can articulate."

"So, would you say it's about re-visioning the status quo?" I ventured.

"Absolutely. We can't have indefinite growth…or perhaps any growth…and I don't know what it might look like, but it's about helping kids understand how things fit together and how systems interact…and sparking a love for the natural world and for people."

In my first interview with Diana at the café, she also mentioned how one *intention* of the True Leaves was to encourage students to re-envision the status quo: "School is so wrapped up in educating people for the work place… Conditioning people to be on-time, subservient…we need an alternative approach to schooling."

Interested in knowing their opinions about critics who argue that education *for sustainability* is its own form of indoctrination, I asked both Diana and Jennifer to comment. Jennifer replied, "We already educate for something, so why not sustainability?" Diana's response was a bit more thorough: "In a sense, all education is indoctrination in certain values and beliefs. Education is not value neutral. It's just that we, as a society, are so immersed in the way things are…that we can't see beyond it…the dominant culture often goes unquestioned, because it's the air we breathe."

When I asked what this transformative approach to education might look like in the classroom setting, Diana said, "Really, its about getting students to engage with the world. At [True Leaves], students will learn to connect their understandings about the world to their own communities and bioregion…and then apply what they are learning in service-based projects. That's where the tire meets the road in their understanding…and in building community relationships."

According to statements that I collected from the founding members of the school, this is part of the reason why True Leaves decided to incorporate elements from Expeditionary Learning into their school design. It's also why they adapted elements from various efforts to enact environmental and ecological education, including the curriculum questions from the Common Roots movement[3] and from routines and practices at the Environmental Middle School in Portland[4].

The founding members of True Leaves also plan to use Lieberman and Hoody's (1998) educational model (Environment as Integrating Context (EIC))[5] in an attempt to engage students in their study of the curriculum. Each of these approaches to education encourages students to become active members in their communities by taking up environmental initiatives and by involving themselves in real-world problem solving.

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[3] The curriculum of True Leaves was focused on Kiefer and Kemple's (1999) five main questions: 1) *Where are we?* 2) *Who are we?* 3) *What are we doing?* 4) *Where can we go?* 5) *How do we get there?* (p. 33-34).

[4] Students at the Environmental Middle School sing at the beginning of each day. They also prepare community meals for each other. The founding members of True Leaves incorporated both of these ideas into their school.

[5] The EIC model of environmental education uses the school community as a vehicle for teaching traditional subject matter through interdisciplinary instruction and project-based learning.

* * *

Diana and her colleagues explained the concepts of sustainability and sustainability education with an emphasis on *people* being at the heart of these movements. This point was mentioned several times, first by Diana: "The key question in sustainability education is '*How do we support healthy people?'"* Then by a true Leaves' volunteer: "If we are not serving the needs of people, then we are not serving the needs of the planet." And, finally, on the school's website: "While there is no universally accepted definition of sustainability, the various formulations of the concept all point in the same direction: Sustainability is a human-centered idea."[6]

The fact that the founding members of True Leaves chose to define sustainability as a human-oriented ideology is somewhat in disagreement with scholars such as Rowe (1994), Orr (1994), Smith & Williams (1999) and even Sterling (2001; 2004) (the scholar whose work Diana cited as being the inspiration for the school itself) argue that sustainability requires a more *eco-centric* outlook:

> The ecocentric argument is grounded in the belief that, compared to the undoubted importance of the human part, the whole ecosphere is even more significant and consequential: more inclusive, more complex, more integrated, more creative, more beautiful, more mysterious, and older than time. The "environment" that anthropocentricism misperceives as materials designed to be used exclusively by humans, to serve the needs of humanity, is in the profoundest sense humanity's source and support: its ingenious, inventive life-giving matrix (Rowe, p. 106-107).

[6] The founding members based this conceptualization on definitions put forth by the United Nations World Commission on Economic Development (WCED) and the British non-profit organization Forum of the Future. The WCED defines sustainability as: "Meeting the needs of the present without compromising the ability of future generations to meet their own needs." Forum of the Future defines it as: "A dynamic process which enables all people to realize their potential and to improve their quality of life in ways that simultaneously protect and enhance the Earth's life supports systems."

Eco-centrism recognizes human beings as being inseparable from the natural world (Rowe, 1994), whereas anthropocentrism regards human beings as the central and most significant entities in the universe (www.oed.com).

Within the context of sustainability theory, anthropocentrism has been suggested as being the underlying cause for the environmental problems that we are facing today. Foreman (1993) claims that humanity's need to dominate the earth and deplete its supply of natural resources is a result of our anthropocentric way of thinking. Plum (1993; 1996) compares *anthropocentrism* to *androcentrism* (in the context of feminist theory) and *ethnocentrism* (in the context of anti-racist theory), in that all three are problematic to the successful realization of a sustainable and socially just world.

In keeping with this line of thinking, Orr, (1994); Smith & Williams, (1999); Sterling (2004); Capra (2005) and others working in the fields of environmental, ecological and sustainability education argue that—in order for the concept of sustainability to become a reality—humans must shift their point of view from a human-centric to an eco-centric worldview. According to Smith & Williams (1999), this involves a conscious critic of the "cultural assumptions upon which modern industrial civilization has been built" (p. 7). It also involves exploring how these assumptions "have contributed to the exploitation of the natural world and human populations" (p. 6)—and it requires that students be prepared for "work as activists able to negotiate local, regional, and national governmental structures in an effort to adopt policies that support social justice and ecological sustainability" (p. 7).

Sterling (2001) supports this viewpoint and proposes that:

> [Sustainable education] requires a change of educational culture, one which develops and embodies the theory and practice of sustainability in a way which is

> critically aware. It is therefore a transformative paradigm which values, sustains and realises human potential *in relation to* the need to attain and sustain social, economic and ecological well being, recognising that they must be part of the same dynamic (Sterling, 2001, p. 22).

He goes on to claim that: "We [as a society and culture] need to recognise the underlying factors and ideas which still make most educational practice a servant of the past" (Sterling, 2008, p. 1); these being the human centered concepts of reductionism, objectivism, materialism and dualism (Sterling, 2008).

Orr (1992) argues that an eco-centric outlook is at the heart of what it means to become *ecologically literate*: "The ecologically literate person has the knowledge necessary to comprehend interrelatedness and an attitude of care and stewardship [towards the earth]…a firm understanding of the dynamics of the modern world…[and] a deep understanding of human rationalism and how the practices of modern society have contributed to the ecological dilemma we are now faced with solving" (Orr, 1992, pp.92-93).

Granted, Diana and her colleagues did state that: "We, as a society, need to move beyond ourselves…and realize that we're part of a larger ecosystem." They also stated that sustainability education involves: "…building young people's competence as systems thinkers, who are able to understand the complex dynamics of the contemporary human-earth situation, and respond wisely to our collective challenges." But, overall, the founding member's conceptualization of sustainability placed human being at its center:

> People seem to be very good at finding areas of disagreement, but what can we agree on? What can unite the political left and right? The rich and poor? The religious and a-religious? We can all agree that "healthy people" is a good goal. Not just physically healthy, but emotionally healthy, spiritually healthy, psychologically healthy, etc. (True Leaves Charter School, 2008).

The fact that Diana and her colleagues chose to articulate the concept of sustainability in this way is a significant finding, because it illustrates the complexity involved with understanding and defining the concept of sustainability. The founding member's emphasis on *people* instead of the *environment* also raises the question of whether or not *health* or *healthy people* should be the focus of sustainability education. Is education in the name of *healthy people* more palatable than education oriented around the environment? And, if so, what (if anything) is comprised by taking this orientation? A discussion of these questions is beyond the scope of this dissertation, but they are important questions that need to be asked in the context of sustainability theory and sustainability education.

* * *

"Of course, my experience working at a secondary Montessori school has also influenced the school's design."

I put down my coffee and say, "I didn't know that Montessori education extended into secondary school."

"[Well,] there are no Montessori high schools, only Montessori inspired ones. The school where I used to teach at and then worked at as an administrative intern was actually a middle school." She goes on to explain how Montessori believed that all children "pass through four planes of development, from birth to age twenty-four." At each of the planes, people are drawn to different interests and skills, and if they are provided with opportunities to explore their interests and practice life-relevant skills, they can grow tremendously. "Montessori actually wrote a wonderful article about secondary education," she concludes. "I'll have to get it to you."

"That would be great." Diana smiles, and we take sips from our respective mugs. "So, when we spoke on the phone last week, you mentioned that diversity was at the cornerstone of your school. Could you tell me more about that?"

"Sure…we feel that diversity is part of a healthy society. Biodiversity certainly is…and so we are looking to have a fully integrated student body. One of the reasons why we founded [True Leaves] is to combat the re-segregation of our public schools. A majority of the white families in this town live outside of the city. Either near the university or the suburbs. And most of these kids don't get exposed to people of different races or cultures until high school…This has caused some racial tension in the past…So we are looking to have a more integrated student body."

"How do you plan to this?"

"Well, recruitment is key. We are trying to hire an urban outreach coordinator—someone to help us with the recruitment of minority students in the area. And we've already hired a rural outreach coordinator. Although, I'm not happy with his efforts. We also want [True Leaves] to be located downtown, preferably on a bus line, so that more students can attend. If you take a look at a map of Greendale (pseudonym), you'll notice that all of the secondary schools in the district are located outside of the city. But a majority of the minority families live downtown. So we wanted to make sure these families had access to a [secondary] school in their own community." She pauses for a moment then says, "I'm also looking to hire a good friend of mine as the Dean of Students. He's the only applicant of color, and I think he would be a good mentor for our minority kids…and all kids."

"How else are you focusing on diversity?"

"The board is going through cultural competency training right now. When we get our funding, the staff will go through this too. I've [also] enlisted the help of a private consultant to help with the hiring process and make sure we have a diverse faculty. She is a long-time teacher in the community and a trusted figure in the eyes of minorities. She was part of the movement to start an Afro-centric charter school here ten years ago, and the fact that she's working on this means a lot to the community[7]."

"Sounds great." I look down at my questions. "You also mentioned something about supporting democratic thinking the last time we spoke. Could you explain how [True Leaves] will attempt to do this?"

Diana leans forward and adjusts her glasses. "Actually, that's what I'm most excited about. The possibility of teaching formalized democratic thinking skills." She pauses. "We actually wrote into the charter that both the students and staff would be responsible for making decisions in the school, but the chartering institute wouldn't let us keep it. They said that we needed someone *directly* responsible for decision-making. One person. That's me. But we plan to have advisory councils, as well."

"Advisory councils?"

"Committees of students and faculty who will decide what decisions are important to get everyone [in the school community] involved. The intent is to create ownership in the decision-making process, without bollocking [sic] up everything. The challenge is going to be how to find a balance."

"How else do you plan to teach formalized democratic thinking skills?"

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[7] Initially, Diana worried that True Leaves would receive some backlash from the minority community of Greendale, because the charter for their school was approved, but the charter for the Afro-centric school had been denied a decade earlier. True leaves did receive backlash from the minority community, but not for this reason.

"[Well,] there's the service-learning projects that students will engage in. Both inside-and-out of school. We're also thinking of including some type of restorative justice process into our disciplinary plans, but I'm not sure that it will look like."

Sometimes referred to as "reparative justice", restorative justice is a theory that focuses on "the needs of victims and offenders, instead of satisfying abstract legal principles or punishing the offender," (Parker, 2008, para 1). Victims and community members take an active role in the process, while offenders are encouraged to take responsibility for their actions by providing the victim with some form of restitution (e.g., apologizing, returning stolen goods, participating in community service). Restorative justice is a theory based on the idea that crimes or wrongdoing are offenses against an *individual* or *community*, rather than a state (Price, 2001). In 2008, the Denver Public Schools adopted a restorative-based discipline and tested it in six pilot schools. In one school, the policy was credited with reducing out-of-school suspensions by 40% (Parker, 2008).

"What other ideas or people have influenced [True Leaves]?"

"Well, I'm assuming you read our website." I nod, admitting that I have. "Then you know that, philosophically, the design of the school is also based on the work of Nobel Laureate, Dr. Wangari Maathai…Wangari is an environmental activist."

"She won the Nobel peace prize for her work in Kenya, right?"

"That's correct. Dr. Maathai believes that a healthy natural world is the heart of an equitable and peaceful society. That's why she founded her Greenbelt movement."

"What's that?"

"It's a environmental conservation movement—an attempt to restore native plant life and species to Kenya. The encroaching Sahara and shortsighted land management practices have devastated that area of the world. But [in the past thirty years] Wangaari and her movement have planted [over forty million] trees to help stop this."

"Wow." I exclaim. The waitress comes over and asks if we would like more coffee. We both take refills.

"So, the work of Stephen Sterling, Montessori and Dr. Wangaari. Who else?" Diana leans back in her chair and thinks for a moment. Then she says, "Well, we are working pretty closely with the Cloud Institute. Have you heard of them?"

"No."

"Oh, they're fantastic! You have to check them out."

I would later discover that The Cloud Institute for Sustainability Education has been supporting sustainability education in urban areas across the United States since 1995. Based in New York City, the Institute works with schools to develop "rigorous, standards-based curricula and assessment tools that support education for sustainability" (Cloud Institute, 2008).

Emphasizing systems thinking and ecological literacy, the Cloud Institute curricula focuses on helping students to understand how natural systems make life on earth possible. The curriculum works to engage students in: active citizenship, in developing a respect for multicultural perspectives, in developing their creativity and in research studies of their surrounding locale. I would later discover that Diana and the other founding members of the True Leaves Charter School used the Cloud Institute curricula as a basis for their sustainable economics and responsible government classes.

"How did you come to work with the Cloud Institute?" I ask.

"Well," Diana says mid-sip. "I was on a site visit to another charter school—one that was opening up in [Franklintown (pseudonym)]. "And they were using the Cloud Institute curriculum for their entire school…We just decided to adapt elements of it."

"Why is that?"

"Really, we had the core of our curriculum developed already…and our ideas were so similar [to the Cloud Institute's] that we decided to keep things intact. We did use some of the ideas to help design our economics and government classes, though."

"How so?

"The Cloud Institute has a course that incorporates key concepts in business, entrepreneurship and Education for Sustainability. In it, students analyze local, national, and global economies, as well as actions being taken to reorient these economies toward ecological sustainability. They also learn to develop their entrepreneurial skills by putting together a proposal for a green business. It was something we hadn't thought of, and we decided it would be a good fit."

After she finishes this statement, Diana checks her watch. I ask her a question, but she doesn't seem to hear it. "Sorry, I want to make sure that we don't miss Jennifer." The waitress arrives and asks us if we would like more coffee. I let Diana take the lead, "No, thank you. Just the check please." The waitress nods and leaves. "Now, what was it you asked?"

"Other influences?"

"They're not necessary an influence, but we have worked with the Green Charter Schools Network from the beginning. They're a national organization that supports [the

establishment and growth of] charter schools with green and environmentally focused programming and practices—" She pauses for a moment. "And we've kind of based our approach to teaching on Expeditionary Learning."

Initially developed as a training program for young merchant marines at the turn of last century, (with the purpose of teaching sailors the skills they needed to survive in life-threatening situations), Expeditionary Learning remains dedicated to the teaching of practical life skills and knowledge. In addition, Expeditionary Learning is an approach to schooling rooted in the idea that teaching and learning should be "active and challenging, that character development is as important as academic development, and that good habits of mind and behavior should be taught and learned in the process of teaching academic disciplines," (Expeditionary Learning Schools, 2008, para 1).

Kurt Hahn, the European educator credited with developing this model of education, believed that engaging students in a series of intense, mini-life experiences would help to promote their self-esteem, curiosity and spirit. He also believed that Expeditionary Learning would enable students to think critically and to solve problems. Thus, Expeditionary Learning is often structured around project-based learning and weeklong in-depth field investigations (called "expeditions") that help to promote critical thinking, the acquisition of skills and habits, academic achievement, and personal development (Expeditionary Learning Schools, 2008).

In the early 1960's, the non-profit group Outward Bound brought Hahn's model to the United States—and in the early 1990's Outward Bound opened a series of Expeditionary Learning Schools across the country (Expeditionary Learning Schools, 2008). Today, there are over 150 Expeditionary Learning Schools serving over 45,000

students. The learning that takes place in these schools is guided by five core practices (learning expeditions; active pedagogy; school culture; leadership and school improvement; and structures) and ten basic principles. These include: 1) The primacy of self discovery; 2) The having of wonderful ideas; 3) The responsibility for learning; 4) Empathy and caring; 5) Success and failure; 6) Collaboration and competition; 7) Diversity and inclusion; 8) The natural world; 9) Solitude and reflection; and 10) Service and compassion (Expeditionary Learning Schools, 2008).

"So are you an Expeditionary Learning School?" I ask Diana.

"No, not officially. It's just that our school is focused on building a sense of community between students…and [Expeditionary Learning] fits well with this purpose."

Just then, the waitress arrives with the check. "I've got it," I announce before Diana can offer to pay for our drinks. She looks relieved. "Things are pretty tight, money-wise," she admits.

"Really?"

"Yeah. We have yet to receive our funding from the state…and except for some money from the board, I'm pretty much financing this operation on my own."

"Seriously?" She pauses for a moment, as if she doesn't comprehend the nature of my question. "Yes, seriously."

Section summary.

According Eisner (1992), the *intentions* of participants involved in school-wide reform drive all aspects of that reform. From the *structure* of a school to its *curriculum*, *pedagogy* and system of *evaluation*, *intentions* have a profound effect on how a reform is

enacted. It is necessary to review, then, the intentions of the founding members prior to illustrating how these intentions manifested themselves in other dimensions of the school *ecology*. Specifically, it is important to note that the founding members oriented their conceptualization of sustainability around human beings rather than the environment.

It is also important to note that the concept of *social justice* (and ideas related to this concept) inspired the design of this school. In my conversations with the founding members, it was evident that concepts such as *equity* and *solidarity* were driving force of their decision to, among other things, locate the school downtown. Having a respect for *diversity* also appeared to be a major intention of the founding members in the design of this school—and Diana and her colleagues included advisory councils in an effort to promote *democratic decision-making* in the school.

The founding members of True leaves also incorporated the ideas of Wangari Maathai (*activism* and *conservationism*) and Maria Montessori (*independence*, *learning through discovery, developmental education*) in their school design—and with respect to teaching and learning, the founding members expressed their desire to construct a school centered on interdisciplinary, place-based learning. As you will see in the following discussion, all of these *intentions* had a direct affect on how True Leaves was *structured*.

The Structural

In his famous treatise on school reform, Eisner (1992) states that those interested in sustaining educational change must consider how schools are structured: *What is the organization of the school like? Its daily schedule? How are classes organized? Subject-matter? The extra-curricular?*

Instead of accepting these preconceived notions of "subject, time and roles" (p. 622), Eisner (1992) recommends that reform participants "problematize the structures we have lived with for so long," (p. 622). Consider the *structure* of most school curriculums today. In a majority of schools in America, students experience a "collection type of curriculum" (p. 622)—where each subject is studied in isolation from all of the other subjects. *Why do we continue to organize the school curriculum in this way? What are the unintended consequences of this approach to curriculum? Better yet, is this organizational structure supportive of the purposes and aims of schooling?* My point in raising these concerns is not to advocate for or against a "collection" approach to curriculum in schools. Rather, it is my intention to point out the types of questions that change agents should ask themselves when considering the *structural* dimension of schooling during reform.

* * *

I am standing outside of an imposing cement structure. It used to be the old Masonic temple here in town. It is a chilly, February afternoon[8], and I am waiting for Diana to arrive with the two other board members and Diana's architect friend. Across the street is another historic building which now serves as the city's Visitor's Center. Kitty-corner to where I am standing is the Women's Community Building, which explains why Diana and the board chose this site as a possible location for their school.

In October of last year, Diana rented a space in the Women's Community Building for the school's offices. I had the pleasure of helping her move into the space and even paint some of its walls. "This location is just temporary," Diana said to me at

[8] This was on my second visit to Greendale.

the time, "until we settle on a place for the school. Still, a little color won't hurt, right?" I wasn't really surprised, then, when Diana told me that she was considering the building across the street as a possible location for True Leaves. "First off, it's centrally located. And that's what we've been looking for all along….a place close to public transportation…where students can access the bus lines going in an out of the city."

"Plus, it's right next door [to the Women's Community Building], so we wouldn't have to move our offices," she explains. I consider the supervisory implications of this. Then I ask whether or not the school is interested in buying or renting the building.

"Renting at first—to see if it's a good fit for our purposes. But, if we can buy it on the cheap, that's a possibility. The building hasn't been utilized in nearly five years. I think the last time it was occupied it was a bar."

"A bar?"

"Yes. Funny, isn't it? That's part of what I am worried about. How much renovating we are going to have to do." We both look up at the imposing structure. It's four slabs of concrete cemented together with more concrete. Just then, Diana gets a phone call. I wait for a few minutes, while Diana talks with a True Leaves volunteer.As she ends her conversation, Diana announces, "Oh, here they are."

The five of us (Diana, Henry (pseudonym), a board member, Cooper (pseudonym), another board member (and an Associate Professor of Business at one of the local colleges)), and Diana's architect friend, Justin (pseudonym) leave the bright sunlight and enter the darkened hallways of what was once the town's Masonic temple.

"Smells musty," Diana announces, leading the group inside. Coming through the entryway, we find a large gathering room lined with old, wooden benches. At its center

is a tall wooden bar painted black. "Think we could serve lunch here?" Diana asks, touching the wood. I assume that she is being facetious, but maybe not.[9]

The room is dark, its walls also painted black, and I am having a difficult time imagining students studying Algebra in here. "We could divide this space up into classrooms," Diana says. It's more of a question to Justin than a statement. Justin nods and scribbles the idea down on his legal pad.

"Wonder what the utility costs would be to heat this place," Cooper offers. Henry agrees. "We'd have to do an energy assessment."

"How would you do that?" Diana asks.

"Stay overnight for a few days. See where the heat is leaking. I've done one before." Justin nods. "Be a good idea."

We follow Diana into another grand room lined with benches. Above us, maybe twenty feet or so, is a row of small rectangular windows. "Love the windows and the painting," Diana announces. In the center of the massive room is an abstract painting of triangular shapes. "Looks hand-painted," Justin says.

"This would be a great gathering place for morning song," Diana declares, but she is talking to herself now, as her companions are discussing the feasibility of the space and how it might be structured for schooling.

A tour of the second floor reveals several smaller rooms that could be used for offices, then another massive room akin to a ballroom. We explore the basement, the

[9] Throughout this study, I was forced to reconceptualize my idea of school. This was particularly evident in our exploration of different building sites. At many of the locations, I had a difficult time imagining how the space might be organized for learning. Diana, on the other hand, did not appear to have this problem.

fifty-year-old plumbing system and the massive furnace. Back outside, after her companions have left, Diana and I discuss the possibilities.

"I love the space. And the fact that it's an older building not in use[10]. It's a bit dark, but the large rooms would be great classrooms."

"You mentioned song and a morning gathering place. Is that going to be part of the organization of [True Leaves]?

"Yes, actually. It's part of our attempt to build community and personalize the school. I worked in another school that did it, and the kids loved it!"

I remember reading about a school that incorporated song into its daily routine—the Environmental Middle School in Portland. Students would gather at the beginning of the day to sing. I wonder how that might work with high school students.

* * *

Opening in the fall of 2009, the True Leaves Charter School will be a small, non-traditional high school. "We plan to open as a 9-10 school with 125 students," Diana told me in one of our first interviews. "Research demonstrates that small high schools support greater achievement and school satisfaction for students in all racial and ethnic groups…and that's one of the goals of [True Leaves]…to directly address issues that can result in racial tensions…and to provide students with the support they'll need to build healthy relationships."

"And how do you plan to do that?" I ask.

"The school will be organized into learning communities called "Crews." I

[10] The founding members of True Leaves consciously chose not to construct a new building. Aside from being cost prohibitive, constructing a new building would go against a fundamental principle of sustainability—that being the preservation of the local environment and culture.

recognize the term used by Expeditionary Learning Schools. "Crews will meet daily with a faculty mentor for the purpose of providing academic and social support[11]…This reflects a conscious design for every student to be known and supported."

"Students will participate in service learning opportunities, physical recreation, wilderness mentoring, school-decision-making processes and in daily reflection with their peers...They'll also work on their digital portfolios…and prepare school lunches."

Twice a month week, each "crew" of ten or so True Leaves students will be expected to prepare school lunch for their classmates. The idea is "meant to build community" in the school, explained Jennifer, the school's business manager. "There's nothing more personal than preparing a meal for someone."

One of the biggest selling points of True Leaves, according to Diana, is that it is going to be a small school. This fact was brought up in my observation of several (n = 4) community outreach meetings that Diana held in her attempt to market the new school: "Research [by Theodore Sizer] has found that small schools help students feel like less of a number in high school. That's why we group students in teams."

At another community outreach meeting, Diana emphasized the fact that the school would also be "organized in a way to support active learning and interdisciplinary study." Employing a block schedule, students at True Leaves will spend Mondays, Wednesdays and Fridays attending sixty-minute classes. On Tuesdays and Wednesdays, however, school will run an additional hour and learning will be divided up into ninety-minute sessions. "The ninety-minute classes will give teachers the chance to incorporate community outreach projects or learning investigations into the curriculum," Diana

[11] Students are supported in learning, in teamwork and consensus-based decision-making skills. Crews are also intended to consciously build community across the divides of gender, age, race, and class.

explained to parents. "It also gives teachers [the chance] to collaborate and plan interdisciplinary units of instruction."

At the heart of the school's curriculum is a conscious attempt to help students make connections between different subject-matter. The curriculum is organized around what Diana calls "four essential [sets of] questions": *1) Who am I/Where am I? 2) Where have we come from? 3) Where are we going/How will we get there? 4) What's my role?/How do I prepare myself*? Each grade level also has it's own theme, to which teachers will relate content matter. For example, in ninth grade, teachers will weave the concepts of *ecology* and *systems thinking* into their instruction, and in tenth grade, students will explore the theme of *evolution* as they learn about the earth's natural and social systems. As I mentioned in chapter two of this dissertation, the individuals involved with the Common Roots movement in Vermont (an attempt to help educators incorporate ecological thinking into their curriculum) used similar questions and themes in their approach to professional development. The school will also be organized into trimesters, and students will be given the opportunity to participate in weeklong community projects at the end of each semester.

* * *

When I returned to visit Diana the other board members of True Leaves in the spring of 2008, I was anxious to learn whether or not they had chosen a space to convert into their new school. In the month-and-a-half between visits, Diana had kept me updated on the search, but it seemed like every time she and her colleagues were close to making a decision, something caused them to reconsider. For example, in March, Diana discovered that the Masonic Temple would not work, because it was located within a

half-a-block of a bar; and a city ordinance prevented schools from being located within a block of drinking establishments. Another building had been sold prior to them putting a bid on it, and yet another option fell through because its renovation would have been cost prohibitive. So, I was surprised to hear that, on my return trip in April, the True Leaves charter school had finally found a home.

"It's perfect. Better than we could have hoped. The bus line is nearby, and it's half-a-block away from a local soup kitchen that is willing to let us use their facilities to prepare school lunches," Diana told me.

Built in 1828 (in Greek revival style), the building has four floors and over 150 rooms. It is an official landmark on the state's registry of historic places. According to Diana, True Leaves will be taking over the first floor of the building, including a space that used to be occupied by a local theater company.

"We need to section off the entrance [to create classroom space], but aside from that it's perfect." I can tell by the sound of her voice that she is excited and somewhat relieved. It took her nearly six months to secure a location for the school, and the issue weighed on her tremendously.[12]

On a tour of the building that spring, I realize what she meant by "perfect." The first floor entryway is large and inviting, painted brightly in yellow and neatly adorned with over-sized white molding. The floors are original oak, well maintained, and there is an abundance of natural light coming through the large 5 x 8 windows.

The entryway leads into two large rooms, perfectly sized for two or more classrooms. At the back of the building is a darkened hallway leading to a theater. "I

[12] In one of our conversations about her recruiting effort, Diana confessed: "It's difficult to ask parents to send their children to a new school, when you don't know where it will be."

think we will have our morning ceremonies in here," Diana says smiling, and I can almost picture it.

Section summary.

It was interesting for me to see how the *structure* of True Leaves was shaped by the *intentions* of its founding members—which, in turn, were shaped by ideas and practices from the fields of environmental, ecological and sustainability education. Take, for example, the decision to locate the school downtown on a major bus line. The rationale for this decision was *accessibility*[13]. Because the school will be located in a central location close to public transportation, it will be accessible to all students. Yet, the founding member's decision to locate the school downtown was purposeful in another way.

Before True Leaves, *all* of the public high schools in Greendale were built on the outskirts on the city. Locating the school downtown, then, afforded a historically marginalized population *access* to schooling in their *community*. This reflected the founding members' desire to create a school grounded in the concepts of *equity* and *fairness*—two other components of social justice.

The decision to place the school downtown was also based on the hope that doing so would increase the *diversity* of its student body. Fostering diversity was another major intention of the founding board members—and it is a key principle in the movements of sustainability and social justice. Within the context of sustainability, *biological diversity* is the measure of a healthy ecosystem—and *cultural diversity* is a source of innovation

[13] Providing *equal access to resources* is a key component in both the movements of sustainability and social justice.

and creativity in a sustainable and just society. Cultural diversity also promotes an awareness of the other, and it encourages dialogue. Both of these ideas are essential components of ecological education, which consciously works against "the press towards individualism which is dominant in contemporary social and economic experiences" (Smith and Williams, 1999, p. 6-7).

Another example of how the *intentions* of the founding members helped to shape the *structure* of True Leaves can be found in the organization of the school itself. Students at True Leaves will begin the day with song, and they will be asked to prepare lunches for each other on a monthly basis. Students will rotate through a series of classes organized around four unifying themes, and they will be grouped into teams, or what Diana referred to as "mentoring communities." Within these multi-gender, multi-race and multi-age groups they will be asked to participate in service-learning projects, book studies, and in school decision-making projects. On Tuesdays and Thursdays, classes will be organized into ninety-minute blocks, to allow students to engage in project-based studies of their community and, at the end of each semester, students will be encouraged to take up community-based projects and environmental initiatives for additional credit.

Within the context of literature on environmental, ecological and sustainability education, one can better understand why the founding members chose to *structure* their school in this way. Take, for example, beginning the day with song—the purpose of which is to build a sense of *community* or a sense of belongingness between students. Smith and Williams (1999) cited this practice in their description of students and teachers at the Environmental Middle School in Portland—and claimed that working to build a sense of *community* combats the press towards individualism, which is detrimental to

resources allocation and environmental problem solving. They also claim that *community building* fosters an ethic of care in students, which, in turn, can be translated into an ethic of care toward the earth.

The school's conscious decision to engage students in project-based studies of their surrounding locale also speaks to their desire to build community. For, as students become aware of their community, they develop a sense of place. Having a profound sense of place, argues Sobel (2004), fosters an ethic of caring for the local environment—not to mention a desire to participate in civic activities.

Of course, the fact that Diana and her colleagues only considered historic buildings for the location of their school also reflects the concept of *community*. By locating their school in an existing community building, the founding members were not only "being green", but they were also preserving of a piece of local history.

Intentions are a guiding force in any reform, but they were particularly influential in the case of the True Leaves School. The ideas of *fairness*, *equity*, *diversity*, and *community* led to the design of a small school housed in an accessible location, where students could participate in community exploration and service learning both on their own and wither others. In the next section, I will discuss how the founding members of True Leaves designed their curriculum—and how this design was reflective of their educational intentions.

The Curricular

> *[True Leaves] Charter School will prepare our diverse student body to meet the challenges of citizenship, work, and life-long learning in the 21st century. Our interdisciplinary academic program will feature hands-on, community-based learning that supports students in solving real-world problems. [True Leaves]*

> *Charter School students will earn a [high school] diploma and demonstrate readiness for higher education by earning college credit and creating a graduation portfolio that demonstrates that they have met or exceeded all 28 [State] Learning Standards. Our school community will create a model of secondary education that integrates best practices in sustainability education with those proven to support educational equity*
> .
>
> *--[True Leaves Charter School] Mission Statement (2008)*

* * *

According to Eliott Eisner (1992), choices related to content, or what is taught, are the most important decisions one can make in school reform. How educational experiences are to be organized and how knowledge will be assessed must also be considered, not just because these matters affect practice, but also because they reflect the purposes of the school (Einser, 1992). Other questions that reform participants might consider when focusing on the curricular dimension of schooling include: *What value does the school place on specific topics/or ideas by including or not including them in the curriculum?* and *What opportunities are there for students to frame and develop their own purposes for learning?* This last point is especially important in the case of True Leaves, because many of their curricular goals were emancipatory in nature.

Underpinning the True Leaves Charter School's curriculum is the belief that "relevant, engaged, active and inquiry-based learning will produce high-achieving graduates with a strong sense of how they can use their skills and knowledge within the larger community." The core academic curriculum will focus on four subjects: science, social studies, literacy and mathematics; however, students will also gain essential skills and knowledge while investigating critical sustainability questions and themes (see Table 8).

"Students will [also] participate in physical education and health"—and they will have the opportunity to take elective coursework on such topics as: Advanced technology, Sustainable Agriculture and Local Food Systems, Permaculture, Green Building and Architecture, Wilderness Mentoring and arts-based programming that mixes self-reflection with student expressions of creativity (True Leaves Charter, 2008).

"Students will still complete the state's requirements for Carnegie credits," Diana explained on my first visit, "and they will still graduate with state-issued diplomas. But the curriculum is designed in a way that students will see [the intersection of] social and ecological systems."

The curriculum of True Leaves is centered on four groups of essential questions: *1) Who am I? Where am I? 2) Where have we come from? 3) Where are we going? How will we get there? 4) What's my role? How do I prepare myself?* (See Table 8). "These themes are meant to foster interdisciplinary thinking…[and to] give teachers questions to come back to regardless of content," explained Robert, one of the designers of the school's curriculum. "Teachers will also be able to connect disparate concepts and ideas found in different subject matter by returning to the themes of each grade level…The questions are [also] essential to understanding sustainability."

One interesting dimension of the science curriculum at True Leaves will be its integration with agricultural studies and with the school's farm-to-school meals program. By partnering with a small farm located close to downtown, students will have the opportunity to participate in growing the food they will use in preparing daily lunches. They will also learn how to procure foods locally and to design systems for food processing, storage and preparation. "This was inspired by the canning program at

Table 8. Curriculum Matrix for the True Leaves Charter School

Grade 9:	**Essential Questions:** ***Who Am I? Where Am I?***
Themes:	Ecology and Systems Thinking
Science:	Earth Systems Science I: Physical Setting
Social Studies:	Global Studies I
Mathematics:	Mathematical Reasoning I: Algebra
English:	English 9
Health/PE:	Personal Wellness I
CDOS/FCS:	Mentoring Community
Grade 10:	**Essential Question:** ***Where have we come from?***
Themes:	The Evolution of Earth's Natural and Social Systems
Science:	Earth Systems Science II: Living Environment
Social Studies:	Global Studies II
Mathematics:	Mathematical Reasoning II: Geometry
English:	English 10
Health/PE:	Personal Wellness II
CDOS/FCS:	Mentoring Community
Grade 11:	**Essential Questions:** ***Where are we going? How will we get there?***
Themes:	Human Invention/Technology
Science:	Contemporary Science and Technology I
Social Studies:	American History
Mathematics:	Algebra 2 and Trigonometry *or* Probability, Statistics, and Discrete Mathematics for Sustainability
English:	English 11
CDOS/FCS:	Mentoring Community
Grade 12:	**Essential Questions:** ***What's my role? How do I prepare myself?***
Themes:	Wisdom, Insight and Entrepreneurship
Science:	Contemporary Science and Technology II
Social Studies:	Economics and Government
Mathematics:	Mathematical Modeling for Sustainability
English:	English 12

Conservation Village," Diana admits. The experience is intended to give students a foundation for understanding the critical importance of having a regional food supply. A local nutritionist at the University helped to design the program, which also delivers fresh produce to local businesses that are interested in participating.

Of course, the science program will also "foster an appreciation for scientific thought" and, according to the school's website, "[It] will teach students to apply contemporary scientific understanding to the development of new technologies that address our current economic and ecological problems" (True Leaves Charter School, 2008).

The overall goal of the mathematics curriculum is "to provide a strong mathematical foundation and appreciation of mathematics to serve its graduates as citizens, in the workplace, and in future studies, and to insure that students are prepared for the required [the state exit exam]" (True Leaves Charter, 2008). Like science, all students will be required to take four years of math, with the first two years providing students with a strong foundation in Algebra and Geometry and the final two years (the Probability, Statistics and Discrete Mathematics class and the senior capstone class) providing students with the opportunity to "hone their problem-solving schools using meaningful and realistic contexts." (True Leaves Charter, 2008)

As in other schools that use the Core Benchmark Practices of Expeditionary Learning, teaching reading and writing across the curriculum will be a hallmark of True Leaves. English teachers will plan professional development workshops for their colleagues across the disciplines, and the True Leaves Curriculum Director will coordinate this learning across subjects.

"English courses will focus on literary seminars, writing workshops, research skill development, the use of contemporary communication technology, media literacy, and finished products that culminate cross-disciplinary learning projects. Students will explore each year's essential questions through literature, relating historical, political, and economic events across time and place to individual experience and identity" (True Leaves Charter, 2008).

The social studies courses at True Leaves will build on the school's "whole Earth approach [to schooling]," Diana claimed in one of our phone conversations. "Our teachers will attempt to create connections between our [history and science] curriculum strands, by helping students to recognize the way human culture and history have been shaped by ecology." Students will be required to complete four years of social studies, which satisfies the state's requirements for U.S. History, economics and government. The curriculum was "inspired by Maria Montessori's 'Cosmic Curriculum,' which is intended to give students a global perspective." It is also meant to encourage students to develop an appreciation for the universe and their place in it.

Using what Montessori called her "five great lessons": 1) The Story of the Universe's Creation, 2) The Timeline of Life on this planet; 3) The Coming of Humans; 4) The Story of Language; and 5) The Story of numbers) this "Cosmic Curriculum" is intended to demonstrate how sciences, art, history, language and geography are inter-related:

> Children tend to take for granted that what they see around them has always been there. Cosmic education leads to an understanding that even the simple enhancements of their daily lives – forks, paper or pencils for example – were once someone's creation. Through their research, the children discover the many important contributions of others that today are so important in our daily lives.

> This helps them to realize that they, too, can make contributions to the world (www.montessoritraining.net, p. 1).

In addition to partnering with a local farm, the True Leaves Charter School has also partnered with a local community college to allow students to earn credits during their junior and senior year. According to Diana, "Research demonstrates that students who graduate from high school with college credits are more likely to apply to college… and show greater persistence in college beyond the first year. This is especially important for students who come from families where they are the first in their family to entertain the idea of going to college."

Another vital dimension of the True Leaves curriculum is its conscious attempt to connect students with their community. On Tuesdays and Thursdays, teachers will be expected to schedule labs and mentoring activities in the field. Although specific examples have yet to be developed, Diana offered: "working in community gardens" and "helping older adults develop technology skills" as examples of what students and teachers might come up with. "Research consistently shows that service-learning is a powerful way to increase student achievement." Diana declared. "It also shows that students who engage in service learning projects in high school are more likely to be community leaders later in life." This comment reflects the expressed goals found in the True Leaves vision statement that claims, "We will support all students…in recognizing their ability to take leadership in improving the lives of their families and community." It also reflects the school's mission to "prepare [their] diverse student body to meet the challenges of citizenship, work, and life-long learning in the 21st century."

Section summary.

The founding member's decision to orient the *curriculum* of True Leaves around four groups of essential questions[14] reflected their desire to engage students in life-relevant and purposeful inquiry. Following a spiral pattern, the questions begin with the student (*Who am I?/Where am I?*), then ask students to contemplate the world outside themselves (*Where have we come from? Where are we going?*), then return to the student and ask them to contemplate their place in the world (*What's my role? How do I prepare myself?*) Whether the founding members were conscious of this or not, their decision to spiral the curriculum reflects one of the major *intentions* of Montessori's "cosmic curriculum", which begins with the student then fosters "a global perspective" by introducing them to the world outside of themselves.

By organizing the curriculum around these four sets of questions, students are also encouraged in a conscious critique of the world in which they live—which is another major *intention* of the founding members. According to Smith & Williams (1999), students engaged in sustainability education should involve themselves in a critique of modern society—and, in the words of David Orr (1992), *ecologically literate* people must be able to comprehend the "dynamics of the modern world," (p. 93). Given that the founding members of True Leaves hoped to inspire students to "learn actively, think critically, and solve problems creatively and collaboratively, developing the knowledge and skills to redesign our communities for social, economic, and ecological sustainability" it makes sense to structure the curriculum around such questions.

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[14] The four groups of questions are: 1) *Who am I? Where am I? 2) Where have we come from? 3) Where are we going? How will we get there? 4) What's my role? How do I prepare myself?*

Of course, the founding members' decision to unify the curriculum around the themes of *ecology* and *systems thinking* (in 9th grade); *the evolution of natural* and *social systems* (in 10th grade); *human invention* and *technology* (in 11th grade); and *wisdom, integrity* and *entrepreneurship* (in 12th grade) will provide teachers and students with a focus for their studies. By coming back to these themes, students will also be asked to *think systematically*—which is another characteristic of an *ecologically literate* person (Orr, 1992).

Engaging students in studies of their local community—another component of the True Leaves curriculum—reflects the founding member's desire to help students acquire a sense of place. It also gives students a way to orient their understanding of the world outside of their community—and, according to Diana, it encourages students to take up leadership roles in their community, which is another component of the school's mission. In the next section, I will discuss how the founding members of True Leaves approach to *pedagogy* also reflected their educational *intentions*.

The Pedagogical

According to Elliott Eisner (1992), *the Pedagogical* is: "How the curriculum is planned and enacted" (p. 29). Curriculum reform does not occur in a vacuum, nor does it occur without attention to *how* it will be taught. In turn, whether or not teachers have the skills required to teach a new curriculum will also impact the degree of success in the school reform. Those looking to promote change in schools, then, must not only pay attention to *what* is being taught but also *how* it is being taught. It would also benefit reform participants to focus on the difference between what teachers plan to teach and

what *actually* gets taught (or the difference between the planned and operational curriculum).

Since the purpose of this study was to examine how the founding members of a secondary charter school designed a school-wide model of sustainability education—and because a majority of the data collection in this study occurred *before* the school opened—I limit my discussion of the *pedagogical* to the founding members' plans for *how* the curriculum of True Leaves will be enacted. This is important, because it shows how the founding members began to translate their educational intentions into a plan for actual practice. It is also important, because what happens during the planning stages of curricular design directly impacts what happens in the classroom (Fullan, 2007).

* * *

According to the school's charter, "Traditional learning [at True Leaves] will dovetail with a 'whole earth approach' to motivate students to use their education to make concrete changes in their community" (p. 2). Students will take courses in the four traditional subject areas (science, social studies, literacy and mathematics), and they will receive enough Carnegie credits to graduate with a regular high school diploma. In addition focusing on content, learning will be structured in such a way that "students are challenged to take on real-world problems and projects, work in teams, and perform for real audiences." This focus on providing students with authentic learning experiences, or opportunities to apply their knowledge in real-life settings, is what will separate True Leaves from more traditional high schools.

"Teachers will use the surrounding landscape as a starting point for understanding history and other topics of global importance," explained one volunteer that I interviewed. When I asked her to elaborate on this, she said, "Take, for example, the topics of hydro-fracking and gas drilling. These have been big news lately. Students might explore [these topics] by first going out into the surrounding community and finding places where natural gas deposits could form…They'll learn about how these deposits came about over a period of millions of years…and they'll learn about the processes involved with the development of natural gas. Then they'll take what they learned and put it into the context of drilling for natural gas around the world."

The example given by this volunteer (who was later hired as a science instructor for the school) falls in line with the expressed goal of "using urban spaces and natural lands as classrooms for instruction" (True Leaves Charter, 2008, p. 14). It also aligns with the school's aim of "[developing] critical thinking and problem-solving skills," (p. 3) and encouraging students to think globally.

"The whole purpose of the curriculum," Diana once explained to a group of parents, "is to get students actively engaged in learning. They might, for example, support a neighborhood planning team, or restore a wetland, or participate in climate-related research, or retrofit low-income housing with green technology. The skies the limit."

"So, what's the purpose of [having] themes?" I once asked her in an interview. "The themes tie everything together and give the curriculum an interdisciplinary focus, which is another way to further promote systems thinking."

"Will teachers ever team teach?" I ask, thinking about the interdisciplinary focus of the curriculum.

"Hopefully. We plan to establish teams across grade-levels and cross-disciplinary teams. I'm not a big fan of grade-levels and divisions in schools, but one of the constraints is that we have to look like a normal school."

When I asked Diana to describe her ideal teacher, she paused for a moment then said, "They would need to possess the ability to inspire kids. And a proven track record of working with youth. They would need to have the ability to work collaboratively…and a willingness to engage in reflection. They would think, *How could I do this better?*...constantly…and they would need to have a deep commitment to the mission of the school."

"Anything else?"

"They would need to have a firm understanding of what sustainability means without anyone having to explain it them…and how it relates to pedagogy and curriculum. They would see sustainability, not as a content, but rather as a process."

Section summary.

The *intentions* expressed by the founding members of True Leaves had a direct impact on the *structure* of the school and its *curriculum,* which, in turn, affected the school's approach to *pedagogy*. For example, the school's expressed goal of "using urban spaces and natural lands as classrooms for instruction" inspired the school's ninety-minute block periods, which allowed students and teachers the time and flexibility they needed to participate in project-based studies of their surrounding community. In turn,

the school's hope to inspire systems thinking influenced the founding member's decision to organize the curriculum around four sets of essential questions and themes. This will encourage teachers to structure learning in an interdisciplinary way.

In the next section, I will discuss how the founding members of True Leaves approach to *evaluation* also reflected their educational *intentions* and interacted with the other dimensions of the ecology.

The Evaluative

The final dimension in Eisner's *ecology of schooling* is what he calls *the Evaluative.* If it is important to focus on a school's curriculum (how it is planned for and how it is enacted), it is also important to focus on *how knowledge and learning will assessed* in the school setting (Eisner, 1992):

> What we evaluate and the ways we evaluate have a profound effect on what we pay attention to school. We cannot achieve a balanced curriculum and better teaching if our evaluation procedures emphasize forms of performance that contradict or are inconsistent with [the] aims of schooling (p. 29).

To avoid a narrow approach to evaluation in schools, Eisner (1992) suggests that reform participants re-examine the aims and purposes of schooling, in order to develop instructional and evaluative systems that are consistent with those aims. He also recommends that schools organize their time, space and the curriculum in ways to support their evaluative systems.

* * *

According to Diana, students will "demonstrate readiness for college by earning college credit and by creating a digital portfolio that demonstrates that they have met or

exceed the state's 28 learning benchmarks." Students will work on their digital portfolios during crew time. "Crew leaders will need to facilitate this process, but since we will be opening as a 9-10 school, what that looks like has yet to be determined…students will produce artifacts demonstrating each of the standards…Beyond that, I'm not sure if we are going to use specialized software."

The state standards that students will be held accountable for meeting fall into seven categories: 1) English Language Arts; 2) Mathematics, Science and Technology; 3) the Arts; 4) Career Development and Occupational Studies; 5) Health, Physical Education, and Home Economics; 6) Languages Other than English; and 7) Social Studies).

When I asked Diana how the school was going to meet the requirements for standards 4, 5, and 6 she explained how, "that is also a work in progress." Because of its size and because of the cost of transportation, True Leaves will not be able to offer a wide range of extra-curricular activities. To address the need for Physical Education, the school will team up with the local YMCA and offer a program of inter-mural sports, including soccer, basketball and physical wellness. "Students will also learn about nutrition, a healthy balance between work and play and their emotional well-being during their Crew time," Diana explained.

To meet the second language requirements mandated by the state, Diana explained how the school will offer three years of Spanish: "We chose to focus on Spanish because of its importance in many communities in the United States, and its status as a primary language in countries on both the North and South American continents." Diana also explained how, "Spanish language and culture will be infused

across the curriculum as is relevant…" and that "Students who are interested in studying languages other than Spanish will be offered opportunities to do so through Tompkins Cortland Community College."

"Crew time will also be used to help students figure out what types of careers they are interested in pursuing after high school," Diana explained, "but, again, what that looks like has yet to be determined."

Of course, teachers will also assess students at True Leaves, as they work to demonstrate their knowledge and understanding of subject matter on tests and quizzes and in community-based projects. "We will have grades, like any other high school. In fact, the state mandates this. But the assessment of learning will be based on students' demonstration of understanding in their learning projects."

Like every other student in the state, students at True Leaves will be required to pass the state's exit exam. In addition to earning passing grades in all of their classes, students in this particular must score a 65 or higher on five exam sections: 1) Integrated Algebra; 2) Global History and Geography; 3) U.S. History and Government; 4) Comprehensive English, and any one science exams: Earth Science, Biology, Chemistry or Physics. To receive an "advanced diploma," students must also pass an additional science exam and one or two additional math exams (Geometry and Algebra 2/ Trigonometry, if they've taken Integrated Algebra, or a choice of Math B or Alg2/Trig, if they've taken Math A).

"How were going to prepare them to take the state test. That was the big question the [chartering] board kept on asking." Diana explained in an interview. "But after we showed them how our classes addressed each of the state's 28 learning benchmarks," the

board was ok. “I think they also liked the fact that students were going to keep track of their learning on their own using a portfolio-based system.”

Section summary.

The system of evaluation designed by the founding members appeared to be largely driven by external forces (e.g., state learning outcomes, content knowledge required for passing the state exit exam). This seemed problematic, given that acquiring content knowledge and graduating from high school were only part of the school’s expressed vision. In turn, the founding members of True Leaves appeared to lack a coherent plan for *how* many of their expressed goals would be evaluated. Whether or not this lack of clarity was a result of the emergent nature of the design process or the rushed timeline for opening the school is not evident. What is evident is that Diana and her colleagues were unable to fully articulate how students would demonstrate their knowledge and abilities. This finding is significant, because the purposes of schooling are shaped by its system of evaluation (Eisner, 1992).

Also absent from the founding members’ plans for evaluation was how the expressed goals of sustainability will be evaluated. If evaluation drives the purposes of schooling—and one of the major goals of True Leaves is to produce socially conscious individuals who possess an honest concern for the environment—then not having a way to assess whether or not students are acquiring *an ethic of caring*, for example, seems detrimental to the school’s intentions.

Section Summary

According to the Oxford English Dictionary, the word *adaptation* has several meanings. As a verb, *adapt* means "to construct or produce by adaptation *from*" (Adapt. n.d.) It can also mean "to alter or modify so as to fit for a new use" (Adapt, n.d.) In a sense, both of these connotations ring true in the case of True Leaves.

The founding members did *adapt* principles and practices from the fields of environmental, ecological and sustainability education (e.g., place-based learning, using the environment as an integrating context for learning, etc.)—and they altered these approaches when they saw fit (e.g., the curriculum questions by Kiefer and Kemple (1999)). Yet, they also *adapted* ideas and practices from outside of the fields of environmental, ecological and sustainability education (e.g., Montessori education, discovery learning, interdisciplinary study etc.) In the end, they created a highly personalized model of sustainability education constructed from a variety of educational theories and methods. This is a significant finding, given that no other studies have documented such an approach to the design of sustainability education. Typically, those involved with enacting sustainability education work from a previously constructed model of schooling—and studies attempting to document this process illustrate the complexities involved with doing just that. This is what makes the case of True Leaves so unique.

Viewed through the lens of Elliot Eisner's (1992) conceptualization of schools as *dynamic ecologies*, the *adaptive* approach taken by the founding members of True Leaves is also significant, because it illustrates the *ecological* nature of curriculum design. Decisions made about one dimension (e.g., *the structural*) affected decisions made about

other dimensions, and so on. Take, for example, the founding member's decision to incorporate place-based learning into their school design. This decision reflected the founding members *intentions* of engaging students in life-relevant and purposeful study. Yet, by choosing to incorporate place-based learning into their design, the founding members were forced to consider *when* and *where* these experiences would take place—causing them to incorporate ninety-minute block periods into the weekly schedule (e.g., the *structural*).

In a sense, another connotation of the word *adaption* could also be used to describe the adaptive approach taken by the founding members of True Leaves. As a noun, *adaptation* means: "the action or process of adapting, fitting, or suiting one thing *to* another" (Adaptation, n.d.). It can also mean: "The process of modifying a thing so as to suit new conditions" (Adaptation, n.d.). As you will see in my discussion of the themes of *resistance* and *compromise*, the founding members of True Leaves were compelled to *adapt* to the emergent conditions of the school-community setting in the process of designing their school. In turn, they were influenced to make decisions about their school design that they might not have made in another time and place. In this sense, this second connotation of the word *adaptation* fits to describe the opening of this school.

Emergence

Although numerous efforts have been made to enact the concept of sustainability in schools around the world, a single, replicable model of sustainability education fails to exist. Without an archetypal approach to follow or adopt, educators looking to enact the concept of sustainability are left to their own devices for deciding what this orientation to

schooling might look like in the context of their local community and to the normative agenda of schooling in their country. Such a process is challenging. It calls for—among other things—an examination of the core attitudes, beliefs, skills and behaviors that individuals are expected to possess as members of a sustainable society. It is for this reason why the term *emergence* describes the process of opening a charter school rooted in sustainability.

According to the Oxford English Dictionary, *emergence* is defined as: "the process of coming into being" or "becoming conscious of" (emergence, n.d.) Given this definition—and that fact that the participants of this study took an *adaptive* approach to designing their school—the term *emergence* could be used to describe the *ambiguous nature* of designing a school rooted in sustainability. This term could also appropriately describe the *phenomenological experiences* of the founding members of True Leaves, as they "became conscious" of how their conceptualization of sustainability would be translated into educational practice. The following is my documentation of the theme of emergence in this study.

* * *

It is the 16th of February, and I am sitting in a small diner located downtown. It's 10 a.m. on a Tuesday and, aside from the short-order cook and waitress, Diana and I are the only people in the restaurant. It's my third visit to the town.

"So what do you think?" Diana asks.

"It's a nice place."

"Yes, it's very kind of…not the kind of world that I am used to." I look around the dimly lit room. At the front of the building is a big picture window. To the left of

our two-top is a long eating bar lined with six revolving stools. "How do you mean?" I ask.

"Well—" she pauses. "This town has different kinds of worlds, and this place is a world that I wasn't really…aware of…or kind of engaging with." For a moment, I think that she is just talking about the diner. Then she says, "I feel like I'm suddenly engaging with the reality of this town more, rather than, sort of my own little world."

"Interesting. How so?"

"Well, with the university, you've got kind of an economic elite in this town…there's also this kind of, what some might call, the hippy-progressives—the sustainability-oriented type of people…and the communities of color, and low-income communities, and rural communities…so there's a lot of different groups of people." Diana stops as the waitress returns with two mugs and a pot of coffee. "I guess I never realized that before I started all of this."

"You didn't realize there were different groups of community members?" My question is reactionary and almost immediately I begin to back track. "I mean—"

"I know that sounds stupid, doesn't it?" she replies, "but it's true."

When I asked Diana why she thought she didn't recognize the different groups of community members before, she explained, "I'm not sure. I guess I was more concerned about everything I needed to do to get the school started."

Diana's admission would be later echoed in a focus group interview that I conducted with a group of True Leaves' volunteers. In response to my question, *What could you have done differently [in opening this school]?,* one of the volunteers admitted: "We could have worked more on developing partnerships with the local community

[more]…on relationship building…and on clarifying purposes. It's just…the process was so all encompassing and a little fuzzy. We really didn't know what we were doing."

Another volunteer piggy-backed on this comment: "We were so involved in the logistics of starting a school….you know…*How much time do we have?* and *What do we need?* I guess we forgot about the importance of community."

The school's failure to build capacity with different constituent groups in their community would prove to be a costly one. As I will discuss in the next section, this admitted failure nearly led to the revocation of the school's charter. To compensate for this, Diana had to adapt and reorganize her priorities midway through the school's planning year. I noticed this change about five months into my data collection. At the beginning of this study, all that Diana could talk about was finding a location for the school, hiring an administrative team and setting up her office space. After the negative reception of the school by some community groups, however, Diana changed her focus: "We need to better articulate what we stand" and "We need to work on involving more groups of people in this effort."

One of the community groups most outspoken about the school's opening was Greendale's minority community. Diana admitted this to me in an interview in March: "…one of the criticisms that I get from communities of color is that you don't talk about how this is a school for our kids…disenfranchised kids…so one of the first things that I say now is that this school will also address an unsustainable situation that many kids face on a daily basis…which is the lower graduation, lower academic achievement rate for students of color and low-income students."

Andrew (pseudonym), a black community member (and the man whom Diana hoped would become the school's Urban Coordinator), expressed his own reservations about True Leaves: "[At first] I thought the school would be dedicated to helping relatively affluent white kids…and I couldn't see why individuals from low-income/minority backgrounds would want to reduce their needs for retail luxury…but after talking with the board president, I have a deeper appreciation for what sustainability is all about. It's about having a healthy resource base, economic and commercial base; and a just and fair social system."

When I asked Andrew why he thought Diana and her colleagues failed to anticipate how their school would be received by people of color in the community, he replied: "Like George Bush and the people of Iraq…I think they thought they would be seen as liberators."

Andrew's comments reminded me of an article written Nelleke Bak (1995) entitled, "Green doesn't always mean go: Possible tensions in the desirability and implementation of environmental education." The premise of Bak's (1995) article is that advocates of environmental education often make two fundamental assumptions when it comes to its desirability and implementation. The first is that "environmental education is a good thing" (p. 345), and the second is that "environmental education needs to be implemented urgently and widely" (p. 345).

Bak (1995) goes onto explain how "These two assumptions may seem self-evident in societies that have established support systems, such as a stable economy, social security and a recognised judicial system to which individuals have recourse…[but

that] in societies that do not have such support systems, these two assumptions can become problematic" (p. 346).

Using South Africa as an example, Bak (1995) illustrates how one of the primary goals of environmental education (living simply within one's means) stands in sharp contrast to the hopes and expectations of Blacks who lived in South Africa during Apartheid: "For this reason, environmental education may be rejected both as a desirable project and as a matter of urgent implementation, in that it may be conceived to undermine the very concepts of 'redress', 'equality' and [social] 'justice' promised [to them] by the South African government" (p. 346). With its call for a decrease in unnecessary consumption, environmental education may also be interpreted as "just another 'hidden' form of apartheid, in the sense that it tries to thwart the acquisition of (entitled) material goods." Bak (1995) goes onto assert that, "The fact that environmental education is vigorously supported by developed countries may cause further suspicion as to what the hidden agendas may imply for underdeveloped countries" (p. 347).

Although it would be inappropriate to directly compare the opening of True Leaves to a similar school opening in South Africa during the years after apartheid, Bak's (1995) comments about the desirability and urgency of environmental education are important ones for educators in the field to consider. The fact that Andrew "couldn't see why individuals from low-income/minority backgrounds would want to reduce their needs for retail luxury" and the fact that he thought "the school would be dedicated to helping relatively affluent white kids" appear reflective of Bak's (1995) concerns. They also bring up one of the major challenges to implementing environmental and sustainability education:

> What makes [this approach to education] so difficult is that diverse social experiences produce diverse and sometimes divergent perspectives toward cultural and ecological politics. Geographical location, race, gender, class—permutations of these and other cultural locations mean social and ecological problems are often perceived and prioritized differently by different groups. For example, around Earth Day in 1970, while White middle-class radicals were denouncing resource depletion and waste and while environmentalism was being promoted as a "non-class issue," urban African-American families were focused instead on "lack of jobs, poor housing, racial discrimination, crumbling cities, [and claimed that] their main environmental problem was Richard Nixon" (Harvey, 1996, p. 117). This does not mean to suggest that African Americans are not concerned with resource depletion and waste but to demonstrate that the locus of environmental care may shift depending on one's social and geographical position (Gruenewald, 2007, p. 6)

To address these concerns, Gruenewald (2007) suggests that ecological educators acquire "a detailed knowledge of the places they plan to inhabit" (p. 7). This involves having a conscious recognition of place's "cultural and ecological politics," (p. 7); yet, it also involves a conscious critique of one's own perspectives.

In the end, Diana and her colleagues failed to anticipate how members of the local community would respond to their school. This is evidenced in Diana's admissions and in Andrew's comments; however, it is also illustrated in the fact that over 700 community members signed a petition against the school's opening. I will document this community resistance in the next section. For now, let me just say that the process of opening a school rooted in the concept of sustainability would have been less challenging, if the founding members would have built capacity for their school in the larger community by opening up a reflective dialogue about sustainability and what it means to be educated for this purpose.

The theme of *emergence* surfaced in other ways in this study. In addition to not being aware of the different community groups in the city, Diana also admitted to

underestimating the time and effort it would take to secure a location for the school: "[Finding a location for the school] is not as simple as we thought it would be." Finding time for hiring and training staff was also an issue for Diana and the board—and Diana admitted that she never realized how hard it would be to get people to understand the concept of sustainability[15]: "You know, I wish I'd never said that word…really, people just don't understand it…"

Many residents in the community of Greendale also failed to understand the nature and purpose of charter schools, as well. I first noticed this, when Diana changed the flyer she was distributing around the community from reading: "[True Leaves]: A New High School Committed to Sustainability Education and Social Justice" to "[True Leaves: A *Small*, *Public* High School Committed to Sustainability and Social Justice."

When I asked Diana about her change of wording on the flyer, she replied, "In the past few months, I've come to realize that people have no idea what a charter school is. They think it's private, not public—and that you have to submit your name in a lottery in order to get in."

As I will discuss in the next chapter, part of this misconception was a result of the local school district's efforts to keep True Leaves from opening: "They are telling parents and community members that [True Leaves] will take money away from their children's education. Nothing could be further from the truth." Overall, though, a good portion of the community wanted nothing to do with charter school, because they saw their local

[15] In my observation of a community outreach meeting, one parent asked: "How much time will be spent learning about the environment? Will students study other subjects?" To me, this comment reflected the difficulty associated with separating the concept of sustainability from environmentalism.

school district as successfully serving the needs of students in the community—and the founding members of True Leaves failed to anticipate this.

The theme of *emergence* or "coming into being" was also reflected in the school's lack of forethought or planning for organizational capacity. I became aware of this in an interview with the school's business manager. "When I first started coming to the [True Leaves] volunteer meetings, they were at a point where…you know, the school had been approved…and people were really anxious to do stuff, but there really wasn't anything to do yet…really…and I think they had been so heavily involved in the envisioning of the school that there wasn't really anyone who like, more of any organizer type…it was just too amorphous, and so I volunteered to become the secretary."

In *Charter Schools: Another Flawed Educational Reform?*, Seymour Sarason (1998) discusses the potential barriers to opening a new educational setting:

> No one seeks to create a new setting that will be a replica of an exisiting one. In some way or ways the new setting [is intended to] be superior to, better than, more distinctive than comparable settings. In a purely psychological-phenomenological sense the new setting will be more than distinctive, it will be unqiue…It is the sense of uniqueness that is so powerfully motivating and captivating to the creators-leaders to be almost exclusively futures oriented. Initially, at least, they are far more clear about what the new setting will look like and accomplish than they are about what they will have to do, the resources they will need, and the time it will require to achieve their purposes." (p. 25).

Diana would later admit that she got wrapped up in what the school stood for and what they could accomplish with the school, rather than what she needed to do to get the school up-and-running: "I know there are certain things…I know, strategically, I should have done first."

"Like what?"

"Well, there are a number of ways in which I kind of spun my wheels…oh, I don't know. Like our website development. Huge amount of time and energy spent on putting that together…it's a beautiful site with great information about what the school stands for…but that didn't need to be done first."

Confusion over how the school should be organized also cost the founding members some valuable time: "Initially, the plan was to open as a 9th grade only school—but when several parents in the community objected [because their children were going to be in 10th grade] they changed the organization of the school to 9-10," explained one volunteer. As did, Diana's inability to assign roles and responsibilities to the volunteer staff: "I don't think…initially…Diana knew what to do with [the volunteer staff]," said one volunteer. "After a while, though, it became clearer to her…and we began to get things organized."

When I asked Diana why she didn't just hire an educational management company to help get the school up-and-running, she replied, "If you need to be hiring an educational management company, you're very much, you're really not part of reform…you're part of business as usual.

"Interesting, so you're saying that charter schools that don't enlist the help of management companies are acting…more in the spirit of educational reform?"

"Right. Yes. As a mom and pop, we're up against impossible odds. And I'm just trying to figure out… how to do everything."

Diana would later change her tune and admit that "it would have been easier with a start-up company," but at that point, the school was nearly open and the organizational infrastructure had been figured out.

Section Summary

The theme of *emergence* surfaced several times over the course of this study. From the beginning, it was obvious that the founding members of True Leaves lacked a cohesive plan for how to open their school. This was evident in comments made by the True Leaves volunteer staff: "It's just…the process was so all encompassing and a little fuzzy. We really didn't know what we were doing"—and in comments made by Jennifer, the school's business manager: "[The beginning] was just too amorphous." Even Diana, admitted to not really knowing where to begin: "I kind of spun my wheels," she confessed. "[And] I know there are certain things… strategically, I should have done first."

Eventually, however, Diana and her colleagues "became aware" of what they needed to do to start their school. They established priorities (e.g., rented office space, hired a support staff and administrative team, etc.), and they began marketing their school in the larger community. Unfortunately, they also "became aware of" the fact that some members of the community failed to share their enthusiasm for opening a school rooted in sustainability. To add to this dilemma, Diana and her colleagues realized that some community members equated the concept of sustainability education with environmental education—and that others failed to understand that charter schools were tuition free and open to the public.

In a sense, one could argue that the founding members of True Leaves also "became conscious" of the fact that, if they did not address these misconceptions and market the school in a more palatable way, the school might not open. This was

evidenced in Diana's decision to highlight the fact that True Leaves was a *small* school (instead of a school focused on sustainability) on informational flyers and at the community outreach meetings that I attended. I will discuss this supposition more in the final section of this chapter.

Constraint

In *Charter Schools: Another Flawed Educational Reform?* educational reform scholar, Seymour Sarason, talks about the potential barriers to developing new educational settings. In addition to time, resources—and what Sarason (1998) refers to as "organizational craziness" or the "omnipresent struggles around power, status and resources in an organization" (p.24)—he describes the internal and external constraints that can be placed on the founding members of a new school. The following is my description of the *constraints* placed on the founding members of the True Leaves Charter School. From the beginning of the study until its end, the external constraints of: time, resources, public misconception and community resistance will show how *constraint* was a major theme in this study.

Time

According to Sarason (1998), the founding members of new educational settings can be somewhat naïve when it comes to their understanding of time: "For most leaders this is the first time they have had the responsibility to create a new setting…[and] in the abstract they know that time is a limited, precious resource, but it is only when they begin confronting the realities of creating a new setting does the abstraction take on personal meaning; time does not pass; time seems to fly by" (p. 28). Sarason (1998) goes on to

explain that, almost immediately, the creators of new settings begin to perceive of time as their enemy—and they express a constant desire and need for more time:

> As soon as they are told that their plans have been approved, their phenomenological world changes; they must now act and deal with the real world on a daily basis; they must now implement the explicit and implicit meanings of their written words; major and minor decisions have to be made; they begin to experience the pressures of time and the real world; their time perspective changes; and this phenomenological change is swift and associated with varying levels of anxiety, (Sarason, 1998, p. 55).

From the beginning of my study, it was obvious that the founding members of True Leaves felt the pressures of time in their attempt to open their new school. In one of my first phone interviews with Diana, she confessed: "The problem right now is that everything is a priority." And on several occasions afterward, Diana expressed her awareness of her "shrinking time frame" and her need for "a bit more time."

"From the get-go Diana told us that we would have less than two years to get this school off the ground," a True Leaves volunteer told me. "The decision to start the school was made in January…so [Diana and Robert] had only three months to get the charter application together. We received our approval in September. That left eleven months for planning, recruitment and everything else."

When I asked Diana why she and the board had not decided to take an additional year of planning in the development of their school[16], she replied: "Money. If we could have accessed the grant money before May, I would have thought about taking another year to plan. But it was never really an option for us."

[16] In the state where this charter school opened, new schools are encouraged to spend two years in the planning for implementation stage.

Although the limited time frame placed some constraint on the founding members, this lack of time also forced them to recognize what they needed to do in order to get their school up-and-running: "I've had to re-prioritize my goals to make the most out of our time," Diana admitted on my second visit. "Priority number one is to engage local leaders in helping to secure a building facility…Priority two is hiring an administrative team to keep all the systems running…and then we need to secure an office space."

"The first thing we need to do is figure out where the school is going to be," another board stated on this same trip. "We also need to get out into the community to secure our enrollment."

Overall, though, a lack of time (and financial resources) was present in most of the comments that I recorded from the founding members: "It's hard to know how many staff members you need [to hire] without your enrollment being secure," a board member explained to me, "First you need to secure a building, because parents will want to know where they're sending their children…and they also want to know who the teachers are going to be…but we haven't really had the time or opportunity to do that hiring, because we don't have the money to rent a facility, so we don't have our enrollment numbers yet! It's a real chicken and egg situation."

The deadline that Diana and her colleagues set for students submitting applications to the new school was April 1st; however, due a lack of initial enrollment, they ended up extending this cut-off date until July: "If we had had a better idea of what are numbers were going to be [from the beginning], then we could have spent more time

on other things…on hiring and training teachers and staff…and on getting out in the community, explaining what sustainability really means," Diana told to me.

References to the schools' limited time frame also appeared in comments that I recorded from members of the community. In an interview with a parent who was considering sending her child to True Leaves, I was told, "I just don't think they've spent enough time thinking things through. [The founder] tells us that they need to know what the student population will be *before* they can explain how they will meet student needs. In a way, I get this. But it still scares me."

When I asked another community member about what he saw as the most "foreseeable obstacle" in opening the new school, he immediately responded, "Time. They plan to open in five months *and* educate for sustainability *and* educate for diverse populations of students? I don't think they're being realistic."

The constraint of *time* had both a positive and negative effect on the founding members of True Leaves. On one hand, a lack of time forced Diana and her colleagues to focus on the tasks they needed to accomplish in order to get their school up and running (e.g., secure a location for the school, hire an administrative team and open up office space). On the other hand, *time* (or lack there of) was a source of great stress for the founding members. As they missed deadlines for enrollment and began to respond to concerns from the community about their lack of infrastructure, the fact that *time* was of the essence weighed heavily upon them.

Resources

In addition to a lack of time, the founding members of the True Leaves Charter School also felt *constrained* by a lack of resources. This fact was evident in my first meeting with Diana, after she choked up when talking about what it had taken to start up the school: "What an awful first impression," she apologized, wiping the tears away from her eyes. "I sorry. I guess I'm just feeling overwhelmed by the whole endeavor."

"How so?" I asked in a sympathetic tone.

"Well, the board has moved-on—from a founding entity to a governing entity—quicker than I expected—and it's been left to me to put the pieces together. I'm also down to the last of my savings, and I'm not getting paid right now because the school isn't officially incorporated."

"I'm sorry," I replied. Then, after a brief period of silence, I asked, "So you are financing this start up on your own?"

"No. But, much to my husband's dismay, I've charged over ten thousand dollars on my credit cards [to pay for flyers and office supplies and to pay for food at the community outreach meetings].[17] We were supposed to get $600,000 in grant money [from the federal government], to pay for operating costs, professional development, and other start up needs, but that money can't be accessed until February when we become fully incorporated."

Actually, the school wouldn't receive their grant start-up money until May of that year. After a delay in getting their school incorporated, it took several months for the

[17] Diana wasn't the only volunteer using her credit card to get True Leaves up-and-running. Three other volunteers and two board members admitted to charging up to $1,000 on credit cards just to keep the school afloat.

school's charter contract to move through the state's bureaucratic financing system. In the end, the school had just two months to spend $300,000 of the grant money awarded to them by the federal government for start-up costs. "Much of that money will be used to pay off debt, but you just think of what you could have done if it had it come sooner," reflected the school's business manager.

To mediate this lack of resources, Diana and her colleagues established a line of credit at a local bank. "It's only $20,000, but every little bit helps." They also started a non-profit organization called "Friends of [True Leaves]" to pay off some of their debt. "The purpose of the non-for-profit is to allow us to receive donations from members of the community," a founding board member told me. "We hope to make life easier on [Diana], by hiring an administrative team to help her out."

Like time, a lack of financial resources also prohibited the founding members from moving forward with their organizational planning. In addition to keeping Diana from hiring an administrative team, the founding members could not rent a facility for their school, which—in turn—pushed back their effort to secure enrollment. "It's frustrating, you know," Diana told me. "I mean. Why approve a charter if you can't provide the money or, at least, a realistic timeline for when the money will come?"

In my review of research on charter schools, I did not find any similarities between the financial difficulties faced by True Leaves and other charter schools. It appears, then, that what happened to the founding members of True Leaves was an isolated incident. This, of course, does not take away the fact that the schools lack of financial resources prohibited them from building the organizational infrastructure that they needed to move forward with their school design.

Public Misconceptions about Sustainability and Charter Schools

Another limiting *constraint* placed on the founding members of the True Leaves was the limitation of needing to address (and readdress) public misconceptions about the concepts of sustainability, sustainability education and charter schools (in general). Evidence of this was found in my observations of community outreach meetings and in the interviews that I conducted with founding members and members of the local community.

* * *

I pull up to the run-down community center in a van with the rest of the True Leaves volunteers. There are five of us total: Jennifer (pseudonym), who is also the school's business manager, Rachel, Simon, Bill (pseudonyms) and myself. The community center is located about eight miles out of town on a two-lane highway surrounded by tall bluffs and trees. It's a concrete and cinderblock building painted green and white. It reminds me of a mechanic's garage, but without the roll-up, front doors.

"Diana says she'd be here in ten minutes," Jennifer announces. It is twenty till seven. The five of us pile out of the van and into the community center, carrying the snacks that we just bought at the grocery store. A female janitor who has unlocked the front door greets us. "We're from [True Leaves]," Jennifer says. "Is there someplace we can set up?"

"I've got these tables here," the woman says, pointing to a stack of lunch tables in the corner. We begin unfolding the tables and setting up the snacks for our guests.

Tonight's community out-reach meeting is meant to "get the word out" about True Leaves, Diana told me just before she sent me off with the volunteers to buy food. In an effort to attract a mix of urban, suburban and rural student populations, Diana and her colleagues plan to hold meetings like this one at various locations around the True Leaves community. This is the first in their effort to market the school.

A few minutes after seven, Diana finally pulls up to the community building. She enters with a flourish—her arms flailing as she tries to balance the pile of pizza boxes she is carrying. "You wouldn't believe the line at [name of pizza place]!" she exclaims to everyone present. The meeting was scheduled for seven o'clock, and there are already three parents and two children waiting for it to start.

Placing the pizza boxes down next to the trays of fruit and cookies, Diana tells the families present to "Eat. Everything here is for you. And thank you, so much, for coming!" The parents and kids hesitate then get up and move towards the buffet. As the families fix small plates, Diana rushes to set up her presentation. She has brought a fold-up screen, her laptop and several brochures outlining the goals of True Leaves. Another parent arrives, just as she finishes setting up. It's ten-after-seven, and I note that there are more True Leaves members present than parents and students. "Shall we begin?" Diana asks. A few people nod their heads.

Diana starts her presentation by explaining the mission of True Leaves: "At [True Leaves] we hope to educate students to meet challenges of the 21st century. By this, I mean, prepare students to become critical thinkers about the world they live in." She continues, "Students will also be challenged to become active citizens, by participating in service learning projects around the community…" I look around the room. A woman is

whispering to the man next to her. A kid is eating a piece of pizza. The True Leaves volunteers are the only one's nodding their heads. "We will have an interdisciplinary focus…" Diane explains.

After she finishes her presentation, Diana waits for questions. The room is silent. Then a man raises his hand. "So, how much time will students spend learning about the environment? I mean…will students study other subjects too?"

I look at Diana. She smiles and recognizes the man's question with a nod. Simon, Rachel and Bill look at each other and grin. "Of course," Diana says. "Sustainability isn't just about the environment. It's about the intersection *between* the environment and social and economic systems." The True Leaves volunteers nod their heads again. Diana goes onto explain how the school will involve students in inter-disciplinary study—and how students attending True Leaves will take "regular" classes, like "math and science", but "in a way that was different than we went to school." The man sits with his arms folded. When she finishes, he does not ask a follow-up question.

"How do you plan to support students with special needs?" a women sitting in the front row asks.

"Well, I guess that depends on what our student population turns out to be. We will need to determine how many students enroll before we know our per pupil funding."

"But do you have a system in place to support special education students?" the woman follows-up.

"We plan to."

Another woman asks if charter schools receive the same amount of funding that public schools get. "Charter schools receive the same pupil funding that other *public*

schools receive, minus the costs of transportation." Diana explains that the local school district will provide transportation for students to and from True Leaves. That is why the school only receives 75% of the per pupil funding granted to them by the state.

One of the high-school-age kids who is present asks if there are going to be any art classes at True Leaves. Diana tells asks him about his art then tells him, "Yes, we plan to have an 'artist-in-residence' to teach classes." He also asks if True Leaves is going to have a soccer team.

"Sure. We can have a soccer team…if you want. Or a chess club. Or any club you want to start." Diana qualifies her comment with the fact that the school doesn't have the money to sponsor athletics on its own, but that they hope to partner with the YMCA, so that students can participate in "inter-mural athletics."[18]

* * *

When I asked Diana how she felt after the first meeting, she replied, "Ok, I guess. I wish the turn out would have been better."

"Do you think people get the concept of sustainability?"

"You mean the question about how much [True Leaves] will be about the environmental?" she asks.

"Yes."

"Well, yes and no. I think the people who want to get it get it…Then again, it's a difficult concept to understand."

"What about charter schools? Do you think people understand them?"

[18] In my first interview with Diana, she initially told me that True Leaves would not offer extra-curricular activities, because the insurance costs were too high. She also confessed that the over-emphasis on athletics in high school was "part of the culture she was trying to transform."

"Not yet. It's such a new concept. And the campaign by the local school district hasn't helped."[19]

At another community outreach meeting, I asked a prospective parent about her first impressions of True Leaves. "Initially, I thought they were a private school. But then they published that article in [city newspaper], and I realized that wasn't true." The article the woman was referring to is one that Diana published in an attempt to dispel the public misconceptions about charter schools and sustainability education:

> [True Leaves] Charter School will be a public school open to all students in the [City] School District…The school will provide area youth with an opportunity to be part of a small, vibrant high school committed to community sustainability. But what is "sustainability"? And what does "sustainability education" look like? Simply put, sustainability is about healthy living. It's about having a healthy, natural environment that can support life on this planet for both current generations and generations yet to come. Sustainability is also about healthy economic growth, healthy forms of government and about healthy people…

The article goes on to describe how sustainability education is "not just about the environment", but about understanding the connection between multiple systems: social systems, economic systems and environmental systems.

In one of my focus group interviews with three community members, other misconceptions about charter schools came up. For example, one woman wondered: " If [True Leaves] can have an ideological mission why not the high school?" Another community member wanted to know how charter schools were funded and whether or not the opening of True Leaves would impact the local schools financially.

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[19] Four months after True Leaves announced that it would open in the Fall of 2009, the local schools district started a campaign to keep the school from opening. According to Diana, the school district "deliberately tried to confuse people about how charter schools are funded."

As you can see, the public misconceptions about True Leaves ranged from thinking that the school was explicitly focused on the environment to thinking that it was a private endeavor and that it would take money away from the local district. Diana and her team worked hard to address these issues (again and again). They changed flyers to emphasize the fact that True Leaves was going to be a small, *public* high school, and they made a conscientious effort to dispel public misconceptions about sustainability education in a op-ed articles, on their school website, at district school board meetings and in their own meetings held for local community members.

In the end, the amount of time and energy that the founding members devoted to addressing these public misconceptions took time away from other priorities—like hiring and training staff or designing a more comprehensive system of evaluation. I will address this fact when I discuss the theme of *compromise* in the next section. Before I move, however, let me discuss another *constraint* placed on the founding members—that being the objection of some community members to the need for sustainability education in their town.

Community Resistance

When I returned to Glendale in April of 2008, Diana revealed a startling concern: "I think the district has it out for us."

"What makes you say that?" I ask, half-thinking she was joking.

"The superintendent basically said so in her last public address announcement to the school community." The announcement was uploaded as a video podcast on the

district's webpage, so I had the opportunity to view it. I have to admit, it did seem like the superintendent had it "out" for True Leaves.

In her public address, the superintendent stated that, "the opening of a charter school…will cause a hardship on the district." She went on to suggest that True Leaves will take funding away from students in the district—and that, in the future, the school will place a burden on tax payers.

"What do you plan to do?" I asked Diana after viewing the podcast.

"Well, the district is holding a community forum about the opening of True Leaves in two weeks. [Robert] and I plan to attend, so that we can dispel any myths that come up."

Unfortunately, I could not attend this public forum. I was, however, able to glean the essence of the conversation from multiple reports. According to Diana, "The district basically told the community that [True Leaves] would take money away from students in the district." This fact was confirmed by a parent who told me, "The district expressed their concern for the amount of money the school district would lose because of the opening of [True Leaves]."

"Did they give you any figures?" I asked the parent.

"No. They said they were [still] working on [calculating] them. But they said the district was already being forced to make cuts because of the recession, and they worried that the charter school would add to this cost cutting."

In response to the district's open forum meeting about True Leaves, a small group of community members started a movement to prevent True Leaves from opening. In an op-ed piece published in the city newspaper in April of 2008, one community member

stated that the "[True Leaves] Charter School presents educational and legal issues for the [Local] School District." Citing a state plan to consolidate schools in 1947, the author suggested that the opening of True Leaves would reduce the efficient functioning of public schools in the district: "The plan was designed to encourage consolidation, annexation and centralization in order to improve the functioning of public schools. It is still good law and policy." The author went on to argue that, in the light of the state's current financial situation, the opening of the school was "fiscally irresponsible" and that "one of the purposes of the Charter School Act is to provide parents and students with educational opportunities. While [True Leaves] advocates claim they are expanding opportunities, the school will in fact divide available resources. By diluting a successful school district's resources, [True Leaves] will paradoxically decrease, not increase, opportunities. The cost of duplicating services limits educational opportunities overall."

"The state should [also] consider whether the intent of the religious prohibition [expressed in Charter School Law] should be extended to bar charter schools whose explicit goals include inculcating particular political and social agenda, using education for thinly veiled political indoctrination," another community member stated. In a piece entitled "[True Leaves] must be challenged", this person went on to argue: "Those who favor sustainability and social justice should ask themselves if they would also support with their taxes a separate charter school whose theme would be 'free market capitalism.' If the former is a valid reason for a charter, why not the latter? Is it wise to open this door? Shouldn't schools educate, rather than indoctrinate?"

On a local cable television program about True Leaves, aired a few weeks later, questions were raised about the purposes of education:

- *"Shouldn't the purpose of education be to teach students how to think critically by offering them opposing points of view? If so, then [True Leaves] is in direct opposition to this principle."*

- *"If you have a charter school in sustainability, where does it stop? What about a Milton-Friedman School of Economics? Schools should offer the basic curriculum, then let students decide what to think."*

- *"Sustainability is green carried to extremes and social justice is about the redistribution of wealth. Where is the choice for traditional parents?"*

In addition to challenging the opening of True Leaves in newspapers, this same group of community members started a petition to "place a hold on the application of [True Leaves Charter School] until several important questions that have been raised by the public are fully addressed." Signed by more than 1200 people (including two state senators), this petition cited the case of Roosevelt UFSC v. SUNY that upheld "the right of a school board to challenge a [state chartering institution's] determination to grant a charter on grounds that it was arbitrary and capricious, because the [institution] failed to properly consider the financial impact of establishing a charter school on the extant district."

"Now is no time to put the Greendale School District at financial risk," one community member said. "It's unfair to students and their families, the teachers and administrators and the taxpayers."

Another community member stated, "The community has raised legitimate concerns about the [True Leaves] charter school, and I fully agree that we can't move forward in the absence of full community support and until all of these questions have been fully explored."

"A charter school should be approved only when it is a viable alternative to a failing school," a third community member said. "The schools are successful here. Why do they need to start another school?"

In response to these concerns, Diana and her colleagues held their own public information meeting in March of 2009. Much to their dismay, the turnout was not as large. Nevertheless, at this meeting, Diana explained how the school would not impact the public school district financially: "The state will provide transitory funding to the school district during the first three years of [True Leaves'] opening. During year one, the school district will receive full per pupil funding for each student that chooses to attend [True Leaves]. The following the year, the school district will receive two-thirds of the per pupil funding for each student who attends [True Leaves] and during the third year, the district will receive one-third of the per pupil funding."

Diana also tried to explain how sustainability education fits into the public mandate of schooling: "Sustainability education is not just about the environment. It's about economics and other social systems that are supported by the environment. At [True Leaves], traditional learning will dovetail with interdisciplinary study and experience-based curriculum to help students see the connections between these systems."

In an editorial published the day after Diana and her colleagues held their meeting, a professor of economics and management at the local university expressed his doubts about the funding of True Leaves: "The purported claim that [True Leaves] will simply proportionally reallocate tax dollars away from existing schools and students, leaving no net new costs to taxpayers or negative impacts on existing schools is

unfounded and based on short-term (non-sustainable) budgeting and a flawed understanding of the realities of public school financing and operations," he wrote. "As one-time grants expire and temporary state transition support declines, the financing burden will unquestionably fall on local taxpayers."

When I asked Diana to comment on the article she replied, "His argument is based on the state reducing transition funding, but the funds have already been allotted. I just don't get it," she continued. "The local school district should be paying *us* to recruit for t*hem*. They get additional funding, plus they get to keep 25% of *our* per pupil monies to pay for the cost of transportation…and now they are threatening to close down the other alternative school in the district to make us look like the bad guys!"

When I asked Diana to clarify what she meant by this, she explained, "Just yesterday, the district announced they would be transitioning [Franklin Alternative Community School (pseudonym)] from a 6-8 to a 9-10 to compete with [True Leaves.]" Then she confessed, "I mean, on one-hand, I'm glad we're pushing their agenda, but on the other hand, I feel bad that students who need an alternative to regular schooling at the middle school level won't have a place to go."

According to the district website, the Franklin Alternative Community School is "a small middle school whose 305 students are chosen by a random lottery. It is a public school, with no tuition or fees for district students, with alternatives to traditional curriculum and school governance philosophies."

In my interviews with volunteers from True Leaves, as well as with members of the local community, people expressed their concerns about this decision by the school board. "I think they're doing this on-purpose. To blame us," said one True Leaves

volunteers. A mother of a child who attends the alternative school told me, "As a parent, it angers me to think that [my child] would not be able to attend next year, because it is transitioning to a 9-10. We worked so hard to get him in [to Franklin], now where is he going to go?"

After public pressure to do so, the school district decided to rescind its proposal to transition the alternative school from a middle school into a high school. According to Diana, however, the damage had already been done, "People think we're the ones taking Franklin away from the community. But nothing could be further from the truth."

* * *

In addition to being perceived as a luxury and as a resources threat by some members of the local community, the True Leaves Charter School also faced resistance from community members for other reasons: "This is an educational experiment," one man said. "Would I send my high-schooler to an experiment? No way. That's a tough time to risk your future on an experimental school." Another woman suggested, "If they wanted to try this curriculum [in sustainability], why not open a school within a school?" Yet another man proposed, "If you're going to do something with sustainability, you need to do something with the earth. Why place the school downtown then? Why not outside of the district?"

Other concerns focused on the school's intention to have a diverse student body: "If they plan to educate students from historically marginalized backgrounds, they need the infrastructure to support these [kids]," one man argued. "They need to have a curriculum that is life-relevant—and I'm not just talking about the EIC model or hands-

on learning—I'm talking about the realities that students face on a daily basis like abusive parents, absentee parents, drug addicted parents…"

"If they want a school rooted in diversity, they must understand that diversity," explained another community member. "Students from rural backgrounds. Students with hyper-masculinity…how will their needs be met?"

In my conversation with the man whom Diana was hoping to hire as the urban Outreach Coordinator, he confessed: "My first impression, as a black person in the city, was that the school would be dedicated to helping relatively affluent white kids. I also thought it was solely about environmental issues…There was no shared language about what sustainability means. And even if there had been shared language, there are so many misconceptions about the concept…I..I just think the school should stop using the term all together and adopt a more palatable model."

When I asked this same man about the obstacles facing the True Leaves staff, he explained, "Time. They plan to open in five months *and* educate for sustainability *and* educate for diverse populations? I don't think they're being realistic." He went onto state that the staff will also have difficulty with recruiting students of color: "So far no assurances have been made—how education for sustainability will meet the needs of historically marginalized learners or students from diverse backgrounds. If I were a minority parent, and I busted my ass to get my child on the waiting list for [Franklin Alternative Community School], I would be terrified that I had to negotiate this new terrain…I think the school needs to reconsider its approach…Like George Bush had no plan for peace in Iraq…They need to address their vision deficit…like how they can help the life of a typical minority." He summed his comments with the story of Marcus

Garvey—a staunch supporter of Pan-Africanism—and his Black Star Line: "Garvey got people excited about returning to Africa…and he marketed the trip well…but, as you know, one of the ships sank on its maiden voyage…I'm not sure if I want to get involved with a sinking ship."

Section Summary

The founding members of the True Leaves Charter School faced a tremendous number of *constraints* in the opening their school. Not only was the school challenged by the local school district, it was also challenged by over 700 local citizens. In the end, the petition to strip the school of its charter failed when the state chartering board found no cause for such action. Still, it interesting to consider *why* the school was opposed by so many.

Some community members expressed that True Leaves was a luxury in an un-easy economic time. Others saw the school as a resources threat to the local district—who they felt was doing a good job in educating their children. Still others were opposed to the school's ideological nature; however, whether or not these individuals were concerned about the school's specific ideology of sustainability or whether they were just concerned about schools having ideologies in general is unclear. What is clear is that Diana and her colleagues were forced to address this public opposition to their school, which took time and energy from their school planning.

Diana and her colleagues were also *constrained* by the elements of time, resources and by public misconceptions about the concepts of sustainability and charter schools. Like the public opposition to the school, these limitations compelled the

founding members to make some theoretical and structural changes to their design. I will discuss these *compromises* in the next section.

Compromise

Give and take is a natural part of the change process. Berman and McLaughlin (1978) first illustrated this fact when they coined the term "mutual adaptation," to describe how *both reforms and reform participants are changed* during the implementation of educational innovations. Since Berman & McLaughlin's (1978) famous RAND Change Agent Study, numerous scholars of educational reform (Fullan and Pomfret, 1977; Sarason, 1982; Sizer, 1984; Fullan, 1991, Snyder, Bollen & Zumwalt, 1992; Datnow, 2004, and Fullan 2007) have also illustrated how *negotiation, flexibility* and *adjustment on the part of reform participants* is not only necessary to the success of a reform, but also desirable. As Datnow (2002) notes, social and political contexts can have an enabling affect on participants in a reform. Using the term "co-construction" (p. 45), Datnow (2002) describes how these contexts can help school reformers recognize mistakes or oversights in their planning. However, not all influences to the implementation process are positive in nature. Social and political contexts can have a constraining affect on reforms, as well. It was for this reason why I chose to use the term *compromise* to describe the theoretical and structural changes made by the founding members in their attempt to open the True Leaves school.

* * *

In an effort to limit public concerns (and questions) about the school's expressed

mission of sustainability, the founding members of the True Leaves Charter School decided to change their marketing approach. I first asked Diana about this fact in April of 2009, when I noticed that one of the information flyers left out the word sustainability. "Have you decided to change the focus on the school?" I asked.

"No. But we need to secure our enrollment. And we thought it would be better to play up the fact that [True Leaves] was a small school, rather than one devoted to the mission of sustainability…Besides," Diana, added," people already know we're about sustainability."

Despite Diana's qualifications, I found it interesting that the school was explicitly choosing not to market itself as one devoted to the mission of sustainability. This appeared to be a theoretical compromise made by Diana and her colleagues, so I decided to press them on it.

In an interview with Diana that same month, I asked her if she and her colleagues had been forced to make changes to the school's design because of the recent opposition to the school. "Yes and no," she replied. "Not changes to the school's design, but changes to our approach to opening the school."

"How so?" I asked.

"Well…we weren't expecting the negative reaction [to the announced opening] by some of the community members, and we've had to explain what charter schools are and what sustainability is all about. We really had to take a step back to our approach and reconsider how we would market ourselves."

Another founding board member alluded to this change when he said, "We've decided to focus more on the fact that [True Leaves] is going to be a small school where

each student's needs will be supported. Of course, we're still focused on community sustainability, but parents have to understand that we will be able to support their child before they will listen to the word *sustainability*."

Because of the lack of time and resources, the founding members of the True Leaves Charter School were also forced to compromise with respect to their priorities: "In hindsight, we could have spent more time on hiring or getting the staff on the same page with respect to sustainability," said one board member. Another said, "We spent so much time on the *big* needs—on trying to secure funding and a building, that there wasn't much time for anything else."

This also appeared to include developing the curriculum. For example, when I asked Diana if there were going to be any in-service training sessions over the summer, to help teachers align their courses with the proposed curriculum in the school charter, she confessed, "Maybe. I mean, I hope so. I'm more involved with securing enrollment right now." I would later learn that teachers did not participate in curriculum development, nor any other type of staff development, until just before the school opened.

Another apparent compromise made by the founding members of the True Leaves Charter School in the design process was in their approach to organizational decision-making. Initially, Diana and her colleagues hoped to emphasis the concept of democratic participation by encouraging students to be involved in all school decisions: "We actually wrote into the charter that both the students and staff would be responsible with making decisions in the school, but the chartering institute wouldn't let us keep that. They said that we needed someone *directly* responsible for decision-making. One person. That's

me." To mediate this state regulation, the school established "advisory councils" or groups of teachers and students working together to propose changes.

The way students were to be evaluated also had to be changed, according to Diana: "We just wanted to have students create an electronic portfolio of their work. Really, that is the most authentic assessment of their learning. But the state would not allow us to be exempt from its annual test. So we put in the charter that our students would take the state tests."

"Because we're a public high school," Diana added, "We also had to make sure that our students were given the opportunity to take so many credit hours in the core subjects."

"Was that a compromise for you?" I asked her.

"Not really. I mean, yes and no. In a way, it was fun figuring out how we could weave the themes of sustainability and social justice into the traditional school curriculum. Making sure that the state understood how our students getting the credits they needed to graduate with a state diploma was more of the issue."

Section Summary

In response to their shortened time frame, to public concerns about their school and in response to guidelines and regulations put forth by both the state and their chartering institution, the founding members of True Leaves were compelled to make theoretical and structural changes to their school design. These included changes to how they marketed their school, how they approached organizational decision-making and changes to how much emphasis they placed on certain aspects of their design (e.g., time

spent addressing public concerns versus time spent designing professional development opportunities). The implications of this finding are tremendous, especially when viewed through the lens of Eisner's (1992) conceptualization of schools as *dynamic ecologies*. I will address these implications, as well as others, in chapter five of this text.

Take-Off

It is the end of July, and I am sitting on a short runway in a two-engine propeller plane waiting to take off. This will probably be the last time I visit this town for a while. As the propellers roar to life, I sit back and reflect on the past ten months.

In 30 days, the True Leaves Charter School will open its doors to its inaugural class of students. The school met its enrollment quota of 120 students just this month, and they plan to receive partial per-pupil funding from the state shortly after they open. Most of the staff has been hired (the school is still looking for a Spanish teacher), and the renovations to the school building are nearly complete. Diana is as busy as ever: planning the staff orientation, fine-tuning emergency plans, and still working to clarify what sustainability education means to the greater public. In our last interview, I asked her if there might come a time when she didn't need to explain the concept of sustainability or the need for sustainability education to members of her community. She simply laughed.

The pilot increases the speed of the propellers and the plan begins to turn. We start to traffic down the runway, and I think about my findings and the implications for the field of sustainability education. *Why was there such a public resistance to the opening of this charter school? Was it because parents perceived the school as*

unnecessary? Was it because of the school's ideological focus? Could I ever really know for sure? And then, where does that leave others who wish to get involved in sustainability education? Are charter schools a viable model this this approach?

The plane takes off and we climb at a steep angle for several minutes before making a sharp right turn. I see the airport with the city in the background, then the lake, then the surrounding bluffs and farmland. I think back to when I first came to this place. It was fall and the chlorophyll in the leaves was decreasing. Sugars were on the rise, and the hillsides and valleys below were alive with fall color. At that time, I thought it would be easy for the founding members of the True Leaves Charter School to open up their school. Everything I had heard and researched about the place seemed to lend itself to supporting a school rooted in sustainability. The townspeople were well educated and involved in environmental initiatives. An entire neighborhood premised on the notion of conservation had opened on the outskirts of the city, and the city mayor had expressed a goal for his town to be the first "pod-car city" in America. But, like Diana, I soon discovered the reality of this place.

I look out my tiny window and see miles of overgrown forests of green. The trees and shrubs are well past the stage of developing their first "true" leaves, and I wonder how long till winter. *How long will the True Leaves Charter School remain in existence? Will the local community warm up to the school? With it renew its charter in five years? So many questions*, I think, leaning back in my chair. *I guess only time will tell.*

CHAPER 5

SUMMARY AND CONCLUSIONS

Overview

The purpose of this chapter is to summarize the major findings of this ten-month case study—and to discuss possible implications for theory and practice. I begin by reviewing the purposes of my study. I then provide a direct response to my primary research questions and discuss how the findings of this study raise some important philosophical questions for those working in the fields of environmental, ecological and sustainability education. Next, I discuss how the results of this study call for a re-examination of Fullan's (2007) *Change Process Model*. I also describe how my research findings might help to inform Fullan's model and Elliot Eisner's (1992) conceptualization of schools as *dynamic ecologies*—how my findings confirm the assumptions posed by Sarason (1998) about charter schools. I end this chapter by exploring questions for future research.

Study Purpose

In response to environmental concerns, to the perceived estrangement of humanity from the natural world and in response to fears that the carrying capacity of the earth will soon reach its limits, a growing number of educational scholars have proposed a reorientation to the school curriculum (Orr, 1994; Smith & Williams, 1998; Smith, 2002; Gruenewald, 2003; Sobel, 2004; Sterling, 2004). Termed sustainability education, this transformative approach to schooling focuses on educating students *in*, *for*, *about* and *with* the natural world (Palmer, 1998; Moroye, 2007). It also aims at helping students to

acquire the knowledge, skills, values, beliefs, behaviors and attitudes they will need to become citizens in a sustainable society.

More than environmental education, sustainability education involves a conscious attempt to change students' perceptions about the world in which they live. Its purpose is to help students see themselves as part of an inter-connected social, political and economic system bounded by ecological limitations. In addition to learning about concepts such as carrying capacity, cultural and biological diversity, scale, thermodynamics and state-steady economics (Orr, 1994), students are encouraged to participate in sustainability-based initiatives in and around their local community.

Although numerous attempts to enact sustainability education have been made around the world, a single, replicable model of sustainability education fails to exist. Palmer (1997) and Sterling (2004) attribute this to the fact that sustainability is a concept based on diversity. McKeown (2002) acknowledges this claim and suggests that a single, replicable model of sustainability education would be "entirely inappropriate" (p. 12) given its highly localized nature. Without a model to follow or adopt, educators looking to enact sustainability education are left to create their own processes for what this orientation toward schooling should look like. Such a process is challenging. It calls for—among other things—an examination of the core knowledge, attitudes, beliefs, skills and behaviors that individuals are expected to possess as inhabitants of a sustainable world. It also calls for an assessment of how sustainability education fits within the larger historical and contemporary aims of education in society.

The purpose of this descriptive case study was to examine how the founding members of a secondary charter school worked together with students, parents and

members from the local and regional community to develop a school-wide model of sustainability education. By focusing on the processes involved with enacting sustainability education, it was my intent to document the complexities of translating the concept of sustainability into educational practice. The research questions that I used to guide this study are as follows:

> 1) How do the founding members of a secondary charter school work with members from the local and regional community to design a schoolwide model of sustainability education?
>
> 2) What are the complexities involved with designing a schoolwide model of sustainability education?

To clarify my research purposes—and to help guide my data collection and analysis—I employed two theoretical frameworks: one grounded in the work of Michael Fullan (2007) and the other derived from Eliot Eisner (1992). Michael Fullan's (2007) conceptualization of school reform as having three broad stages (adoption, implementation, continuation) allowed me to perceive of the True Leaves Charter School as a plane attempting to land on the runway of implementation. Elliot Eisner's (1992) conceptualization of schools as *dynamic ecologies* consisting of five dimensions (the Intentional, the Curricular, the Structural, the Pedagogical and the Evaluative) helped me to collect, organize and interpret my data.

In the end, four themes emerged as a result of data analysis: *Adaptation, Emergence, Constraint* and *Compromise*. The first theme relates to how the founding members of this charter school *adapted* elements from various approaches to schooling including, but not limited to: environmental education, ecological education, Expeditionary Learning, Environment as Integrating Context and the small schools

movement. The second theme reflects the e*mergent* nature of the process involved with designing this school. Finally, the last two themes reflect the *constraints* placed on the founding members of True Leaves, as well as the structural and theoretical *compromises* they made in order to get their school up and running.

Implications for Theory and Practice

The purpose of this section is to review the major findings of this study and to discuss possible implications for theory and practice. Using my research questions as an organizational guide, I review the four themes that surfaced in this study: *adaptation*, *emergence, constraint* and *compromise.* I then discuss the possible implications for the fields of environmental, ecological and sustainability education, as well as implications for the field of school reform in general.

How do the founding members of a secondary charter school work with members from the local and regional community to design a schoolwide model of sustainability education?

To create a personalized model of sustainability education, the founding members of True Leaves took an *adaptive* approach to school design. The school director and her colleagues utilized the ideas of Stephen Sterling (2004) to create a vision for their school grounded in the concept of sustainability; however, unlike Sterling (2004), the founding members oriented their mission around the well-being of humans: "The key question in sustainability education is '*How do we support healthy people?'*...Healthy people need healthy social relationships, a healthy economy, and healthy natural systems to support them…so the purpose of [True Leaves] is to transform student thinking and educate

students in a way that provides them with the knowledge, attitudes and behaviors [they will need] to become healthy world citizens."

The school's mission still promoted systems thinking and the need for solving key questions related to sustainability, including how to: eradicate poverty and hunger, provide universal primary education, promote gender equality and empowerment, reduce child mortality, combat HIV/AIDS, Malaria and other diseases, develop a global partnership for development and, most importantly, restore the health of the natural environment upon which the future of humanity depends; yet the founding member's anthropocentric focus strayed from the *ecological* orientation deemed necessary by Smith and Williams (1999), Sterling, (2004), Orr (2004), Gruenewald (2007) and other scholars in the field.

Maria Montessori's vision and approach to a curriculum based on discovery learning and interdisciplinary study also inspired the founding members of True Leaves—as did her Cosmic Curriculum, or series of lessons devoted shaping socially-conscious world citizens. The founding members of True Leaves also incorporated the ideas and practices of environmental activist and Nobel Peace Prize winner Wangari Maathai into their model. Specifically, they incorporated Maathai's call for environmental stewardship and her belief that "a healthy, natural world is at the heart of a just and peaceful society" (True Leaves Charter School, 2008).

Furthermore, the founding members adapted elements from the environmental education models of Expeditionary Learning and Environment as Integrating Context EIC) to design their school curriculum and approach to pedagogy—and they worked with

members from the Green Charter Schools Network and the Cloud Institute for Sustainability Education to design their core and elective curriculum.

Finally, the founder and her colleagues utilized ideas from the small schools movement, from ecological and place-based education and from the planned community of Conservation Village to create a school structure that aligned line with their principles and values for teaching and learning.

The founding members' *adaptive* approach to designing sustainability education is significant for two reasons. First, it illustrates how those seeking to translate the concept of sustainability into educational practice can interpret this concept differently. It also raises the question of whether or not the concept of sustainability can endure its translation from theory into educational practice without compromise.

Fidelity to design has always been a concern for those working in the field of school reform, and—as Berman & McLaughlin (1976) and others (Tyack & Cuban, 1999; Datnow 2004; Fullan 2007) note—the modification or adaptation of new ideas or innovations during the reform process is nothing new. Yet, given that the founding members of True Leaves *adapted* elements from the fields of environmental, ecological and sustainability education in order to create their own model of sustainability education, it is necessary to consider what was gained or lost as a result of this decision.

Consider the founding members' decision to change their system of organizational governance. Initially, the school founder and her colleagues wanted to have a democratic system of decision-making in their school model—where students, teachers and the administration each received a vote on issues important to the school. However, due to state mandates about governance, the founding members were required

to adopt a more hierarchal system. To mediate this state mandate, the school designers created "advisory teams" of teachers and students to make recommendations to the principal for consideration, but this was not the same as having a direct democratic system of governance. One could argue, therefore, that the values of fairness and equity that were represented in this democratic system of governance were compromised by having to comply with state mandates.

Another example of how the principles and values associated with sustainability and social justice were compromised can be found in the way students were to be evaluated at True Leaves. Initially, the founding members wanted to have students demonstrate their accomplishments through the creation of a digital portfolio. However, the state chartering institution would not grant them licensure unless they agreed to have their students participate in state testing, including having students take the state exit exam upon graduation. If you consider that the *intentions* of a school are shaped by its forms of evaluation, then the decision to have students participate in state testing might be considered a compromise—especially if what gets taught in the classroom mirrors what is on the state exam rather than what is reflect in the school's mission.

Because of the lack of time and resources, the founding members of the True Leaves Charter School were also forced to compromise the amount of attention they devoted to curriculum and pedagogical issues: "We spent so much time on the *big* needs—on trying to secure funding and a building, that there wasn't much time for anything else." By just focusing on the *structural* the founding members were forced to ignore other dimensions of the school. This meant that they didn't have the time and opportunity to: design professional development opportunities for teachers, have teachers

participate in terms clarification about the concepts of sustainability and social justice, or design a system of evaluation that took into consideration the degree to which students had acquired the knowledge, skills, behaviors and values related to sustainability. This is significant if you consider the ecological nature of school reform.

The most significant compromise made by the founding members of True Leaves was their decision to change the way they "marketed" their school. Shortly after the school announced that it was opening in the fall of 2009, it began to meet resistance from members of the local community. To alleviate public concerns about their school, the founding members downplayed their mission of sustainability in order to highlight the fact that they were going to be a small school. According to the school founder, this decision was necessary for them to secure their enrollment, but in the end, the importance of the school's mission was compromised.

But then, was anything gained in this process of translating the concept of sustainability into educational practice? In a sense, one could argue that the greatest benefit to the founding members was that the school was allowed to open. This is no small matter, considering the strong community resistance to the school. Then again, I am left to wonder, is it better to have a school with all of its intentions realized or just some? This is a question that those looking to enact sustainability education might ask themselves when translating the concept from theory into practice.

Fullan's change process model.

In addition to being described as *adaptive* in nature, the design process taken by the founding members of True Leaves could also be described *emergen*t. From the

beginning of this study, it was apparent that the founding members of True Leaves lacked a clear plan for how they would enact their ideals into a school-wide model of education. Eventually, the founding members became conscious of what they needed to accomplish in order to get their school up and running; however, significant time and energy was lost in the process. In turn, the loss of time forced the school founder and her colleagues to compromise certain elements of their school design. For example, instead of focusing their attention on how the curriculum would be enacted, the founding members became largely preoccupied with *structural* concerns (e.g., the location of their school, securing enrollment, hiring an administrative team). Within the context of Fullan's (2007) conceptualization of the change process this finding is significant, because it calls for a re-examination of Fullan's (2007) model.

According to Fullan (2007), educational change occurs in three broad phases: 1) *Adoption*, 2) *Implementation*, and 3) *Continuation*. In the first phase, driven by purpose, an individual, group or organization decides to adopt a new educational idea or innovation. Fullan (2007) refers to this phase as the *adoption* stage of the change process, and he explains that it consists of the process leading up to "a decision to adopt or proceed with a change" (p. 65). Once the decision to adopt a particular change has been made, the individual, group or organization then moves ahead with enacting that change. Fullan (2007) describes this second phase as the "implementation stage" (p. 66)—or that period when participants first attempt to put an idea or reform into practice" (p. 66). The extension of the implementation stage is the third phase of the change process model—what Fullan (2007) refers to as "Continuation" (p. 66). In this stage, "the new [idea or] program is sustained beyond the first year or two (or whatever time

frame is chosen)" (p. 66). Results of this multi-stage process can vary; however, typical outcomes include a change in the behavior, attitude or performance of individuals in an organization, a change in the structure of the organization or a change in the performance of an organization as a whole.

After studying the opening of the True Leaves Charter School, it is my recommendation that Fullan's (2007) *Change Process Model* be revised to emphasize the importance of *planning* in the design process. Fullan and Pomfret (1977) chose to include the sub-stages of *initial planning* and *planning for implementation* in their original conceptualization of change; however, Fullan (1984) eliminated these sub-stages for reasons unknown and has since promoted a more simplified model. I am calling for the sub-stages of *initial planning* and *planning for implementation* to be put back into the model—to allow for the recognition that change takes time and to re-enforce the idea that change (especially educational change) is a multi-faceted and complex process. I am also calling for an additional sub-stage to be added to Fullan's (2007) model—that being the stage of *planning for continuation* (See Figure 11).

Consider the opening of True Leaves. The founding members chose to take one year to plan the opening of their school, even though the state chartering institution allowed for two. This decision was based on the fact that the school would not receive their state funding unless they were up-and-operating. Yet, as Diana and her colleagues admitted, one year of planning was not enough. Soon "everything [became] a priority," and the founding members felt pressured by their "shrinking time frame."

As a result of the *constraints* of time, Diana and her colleagues were forced to make difficult decisions about their school design. Instead of focusing on curriculum planning

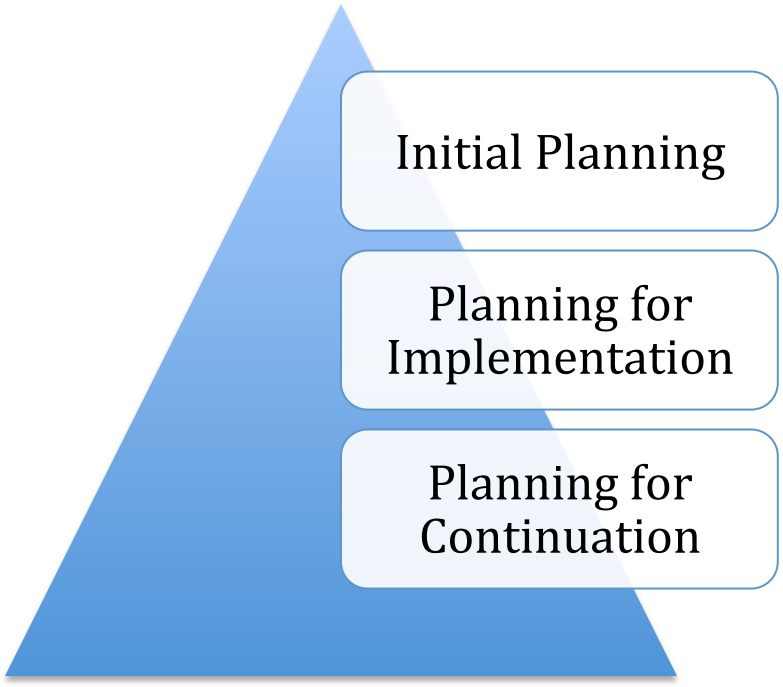

Figure 9: The Sub-Stages of Planning

or creating professional development opportunities for newly hired teachers, they committed to focusing on the structural elements of their school design (e.g., locating a building for the school). Their rush to open the school also limited their ability to build capacity for the concept of sustainability education in their community. In the end, without a clear plan for how enact their educational intentions, the founding members found themselves constrained by the pressures of time, and they were forced to make sacrifices in their school design. This why I am proposing that the stages of *initial planning* and *planning for implementation* be re-incorporated into Fullan's (2007) model.

To help those interested in enacting whole-school reform—or opening a charter school—I have created a matrix of questions based on themes of this study (see Table 9). This matrix pairs each of the themes (*emergence, adaptation, constraint and compromise*) of this study with Eisner's five dimensions of schooling (*the Intentional, Structural, Curricular, Pedagogical and Evaluative*) in an attempt to provide reform participants and/or school founders with a list of questions they might consider prior to and during the implementation process. Although the list of questions is by no means exhaustive, those interested in enacting reform or founding a charter school will get a flavor of the types of questions they must ask themselves before and during implementation.

Yet, just because a school reform has been implemented, does not mean that the planning process is over. Fullan (2007) alludes to this fact himself when he refers to the continuation of a reform as another adoption decision. *Will we continue this reform or won't we? And, if so, what changes need to be made, in order for this reform to be sustained?* Furthermore, unanticipated issues always arise after the implementation of a

Table 9: **Matrix of Questions for Consideration Prior to or During Implementation**

	Intentional	**Structural**	**Curricular**	**Pedagogical**	**Evaluative**
Emergence	What is the purpose of this school? How are these intentions articulated in the school's mission/vision statement? How will we support students, staff, parents and community members in constructing their own understanding of these intentions? How will we build capacity for this school in the community? How will the purposes of the school be manifested in the curriculum? In teaching? In the school structure? In the school's system of evaluation?	Where will the school be located? What resources are needed? How much time will we take for planning? What will the grade-level structure be? How will students be grouped?/ How will classes be organized? How will the structure of the school reflect the school's purposes? System of evaluation? Approach to teaching and learning? What are the implicit messages of the school's structure?	What knowledge, skills, behaviors and attitudes do will we foster? How will the curriculum enable or inhibit acquisition of these knowledge, skills, behaviors and attitudes? How will the curriculum reflect the purposes of the school? Does the structure of the school support this acquisition? The approach to pedagogy? The system of evaluation?	How will the knowledge, skills, behaviors and attitudes we want students to acquire be taught? What pedagogical approaches will allow teachers to enact the curriculum? What pedagogical approaches will best support our educational intentions? What professional development opportunities will we provide for teachers to acquire these pedagogical approaches?	What will our system of evaluation be? How will we evaluate whether or not students have acquired the knowledge, skills, behaviors and attitudes expressed in the curriculum? How will we evaluate whether or not the intentions of the school are being realized? How will the structure of schooling enable or inhibit our ability to assess students?

Table 9: **Continued**

Adaptation	Who/what inspires us? How is this inspiration reflected in our educational intentions? Mission/vision statement? Are we willing to receive feedback and participate in consensus-building about our educational intentions? Are we willing to adapt or modify our educational intentions?	Who/What inspires the structure of the school? Are we willing to receive feedback from and possibly modify or change the structure of our school based on this feedback?	Who/What inspires the curriculum of the school? Are we willing to receive feedback from and possibly modify or change the school curriculum based on this feedback?	Who/What inspires our approach to teaching and learning? Are we willing to receive feedback from and possibly modify or change our approach to pedagogy based on this feedback?	Who/What inspires the our school's system of evaluation? Are we willing to receive feedback from and possibly modify or change our system of evaluation based on this feedback?

Table 9: **Continued**

Constraint	Are our educational intentions novel or highly provocative? What resistance might we anticipate based on these intentions? Will we be able to clearly articulate our educational intentions? Will we be able to help others construct their own meaning of these intentions?	Is the structure of our school novel or highly provocative? What resistance might we anticipate based on these intentions? Will we have enough money? Will we have enough time? Will we have enough personnel? What limitations will affect our ability to open this school?	Is the curriculum of the school novel or highly provocative? Will the structure of our school inhibit the ability of students to acquire the knowledge, skills, behaviors and attitudes promoted by the curriculum? What federal, state or local regulations, if any, will inhibit our students' ability to acquire the curriculum?	Is our pedagogical approach of the school novel or highly provocative? How much professional development must we have teachers participate in? Will the structure of our school inhibit the ability of our teachers to enact the curriculum in any way?	What federal, state or local regulations, if any, will affect our system of evaluation?
Compromise	Are we willing to compromise our educational intentions for the sake of opening this school?	What parts of the school structure are will we willing to compromise based on constraint?	What parts of the school curriculum are will we willing to compromise based on constraint?	Are we will to compromise our approach to pedagogy?	What parts of the school structure are will we willing to compromise based on constraint?

reform has occurred. Take, for example, True Leaves. One unanticipated issue that arose was the community resistance to the school. In response to this resistance, the founding members took a step back, to consider how they would address this issue. In the end, the founding members decided to hold their own community forum to address the local concerns. Thus, adding the *planning for continuation* stage to Fullan's (2007) model is necessary because it gives reform participants the opportunity to address such issues.

Community input.

Before I discuss the major complexities involved with designing a schoolwide model of sustainability education, let me respond to a critical component in my initial research question: How did the founding members of a secondary charter school *work with members of the local and regional community* to design a schoolwide model of sustainability education?

From the beginning of this study, the founding members of True Leaves failed to enlist the help of local community members in the design of their school. This was evident in the fact that a majority of the founding members came from Conservation Village or from a local college where the school's founder worked.

Yet, after the school announced its opening, the school was met with severe resistance. Had the founding members taken the time to build capacity for their school by enlisting the help of local participants in the charter writing process, the school's opening *might* have been met with less resistance. I say *might,* because objections over the school were based on other reasons (e.g., the school's financial impact on the local district). The founding members did enlist the help of two major regional organizations

(the Green Charter Schools Network and the Cloud Institute for Sustainability Education); however, no attempt was made to enlist a broader coalition at the local level.[1] Those seeking to enact sustainability education might benefit from this finding. Especially if they consider Fullan's (2007) comments about meaning making and capacity building:

> So far I have dwelt on the problem of meaning in relation to the content of innovations. I have suggested that individuals and groups working together have to become clear about new educational practices that they wish to implement…{Reform] is about engaging diverse individuals and groups who likely have many different versions about what is right and wrong (p. 39-40).

What are the complexities involved with designing a schoolwide model of sustainability education?

The most significant finding of this study is my documentation of the local community's resistance to the opening of True Leaves. This was identified in comments made by community members in interviews, at parent outreach meetings, in newspaper articles and in the 1200 person petition that was submitted by a community watch dog group calling for the revocation of the school's charter. Although a majority of this public opposition appeared to be the result of fears over True Leaves taking money away from the public school district, a significant number of Greendale residents expressed their concerns over the need for a school rooted in sustainability. This was evident in such comments as: "Our public schools offer an extensive curriculum of 'green studies' including an AP environmental studies [course] at the high school. Why do we need this school?" and "[True Leaves] school would be unnecessary at the best of times, because

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[1] The founding members did ask the local superintendent if she could open the school within the district, but her request was denied.

[2] This finding supports a recognized barrier to implementing environmental and sustainability

the curriculum it advertises as being innovative is actually already included in the current offerings of the [Greendale] City School District, and to the very minor extent that it is not, can be easily accommodated therein."

Implied in these comments is the idea that sustainability education is something that can be reduced to a single course—or something that can be *added* to the curriculum[2]. Also implied is the idea that sustainability education is unnecessary. This point was substantiated in other comments made by community members:

- *"[True Leaves would be] Unnecessary in the best of times. Shameful now."*
- *"Why do this, when it would lead to 1) higher taxes, and, or 2) reduced resources to the current, very excellent [Greendale] high school? This seems to be a very selfish initiative."*
- *"Shouldn't the purpose of education be to teach students how to think critically by offering them opposing points of view? If so, then [True Leaves] is in direct opposition to this principle."*
- *"The current - and future - financial crisis NECESSITATES cuts in every area funded by the taxpayers. It is irresponsible to add new budget items with so little evidence of real necessity."*
- *"If you have a charter school in sustainability, where does it stop? What about a Milton-Friedman School of Economics? Schools should offer the basic curriculum, then let students decide what to think."*
- *"Sustainability is green carried to extremes and social justice is about the redistribution of wealth. Where is the choice for traditional parents?"*

This finding is significant because one of the underlying assumptions of those working in the field of sustainability education is the desirability of this orientation towards schooling (Bak, 1995). If this is not the case then, advocates of sustainability education

[2] This finding supports a recognized barrier to implementing environmental and sustainability education in schools Palmer (1998) and Sterling (2004).

need to address this reality. But then how might those looking to enact sustainability education make this orientation towards schooling more desirable? Does this require making sustainability education more palatable by incorporating more "traditional" values and norms? If so, to what extent must advocates of sustainability education go in order to have this model be accepted by the mainstream public, yet not compromise their values? The conceptualization of sustainability put forth by the founding members of True Leaves was already based on the traditional values of economic development; yet, the school almost didn't open.

In the end, a question that those working in the field of sustainability education need to ask themselves is the extent to which this orientation towards schooling can align within the normative agenda of schooling in their country. In the United States, an example of this would be how sustainability education aligns with the contemporary push for accountability and for closing the achievement gap. This question was brought up by a number of community members that I interviewed. For example, in my conversation with the man who the school founder was hoping to recruit as the school's Urban Outreach Coordinator, he asked: "How will the mission [of True Leaves] benefit individuals from lower income, minority backgrounds?" He went on to state, "If they plan to educate students from historically marginalized backgrounds, well, they need to create an infrastructure to support these individuals." His point is a valid one—and one that supporters of sustainability education need to consider. It was not a point that the founding members of True Leaves had considered until concerns were brought up.

In turn, the school founder and her colleagues never mentioned how True Leaves would support students with special needs. The mother of a prospective student raised

this concern during a community outreach meeting—and Diana didn't have an adequate response for her. Those looking to enact sustainability education must anticipate these concerns and be prepared to articulate how their orientation towards schooling fits within the normative values of citizens in their country.

Eisner's ecology of schooling.

Arguing that the aspiration to reform schools has been a reoccurring theme in American education policy, but that the major features of schools (e.g., its focus on transmitting knowledge, its fragmented structure and approach to the curriculum, etc.) have remained largely intact, Eisner (1992) suggests that modern-day participants in school reform re-conceptualize their understanding of schools and re-think their approach to school reform.

Instead of viewing schools as parts of a whole—and instead of seeing school reform as an attempt to fix those parts in isolation—Eisner (1992) suggests that we begin to think more "systematically" (p. 619) about schooling and school reform:

> Schools are like ecological systems. Given a critical mass, what one does in one-place influences what happens in another. When the mass is not critical, changes made in one place are returned to their earlier position by the others, almost as a cybernetic mechanism keeps a rocket on a steady course. If significant changes in our schools are to occur, our educational system needs to be viewed as a whole, as an ecosystem of mutual independence (Eisner, 1988, p. 29).

In keeping with this idea, Eisner (1992) suggest that reform participants conceive of schooling as having five dimensions: *the Intentional, the Structural, the Curricular, the Pedagogical and the Evaluative* (Table 8).

Table 10: **The Five Dimensions of Schooling, Eisner (1992)**

Dimension	**Explanation**
Intentional	The aims of schooling or the aims of the curriculum.
Structural	How a school chooses to organize the time, space and curriculum.
Curricular	The content of the curriculum or how the curriculum is organized.
Pedagogical	How the curriculum is planned and enacted.
Evaluative	How the curriculum and student learning is assessed in schools.

Source: Eisner, E. W. (1992). Educational reform and the ecology of schooling. *Teachers College Record*, 93(4), 610-627.

The aims or purposes of schooling are what Eisner (1992) refers to as the *Intentional*. *What are the aims of the school at the heart of a reform? What are the aims of its curriculum? How do these aims coincide with the historical and contemporary aims of schooling in society?* and *How do they coincide with the other dimensions of schooling?* According to Eisner (1992), these are just a few of the questions that reform participants must ask themselves if they hope to successfully change schools.

The second dimension of Eisner's (1992) ecological framework is the *Structural.* The *Structural* refers to ways in which "subject, time and roles" (p. 622) are organized in

a school setting. Instead of accepting the preconceived notions of school structure and organization, Eisner (1992) suggests that reform participants "problematize the structures we have lived with for so long," (p. 622). For example, take the *structure* of most school curriculums. In a majority of schools in America today, students experience a "collection type of curriculum" (p. 622)—where each subject is studied in isolation from all of the other subjects. *Why do we continue to organize the school curriculum in this way? What are the unintended consequences of this approach to curriculum? Better yet, is this organizational structure supportive of the purposes and aims of schooling?* My point in raising these questions is not to advocate for or against a "collection" approach to curriculum in schools, but to illustrate the types of questions that Eisner (1992) suggests for consideration in school reform.

The third dimension of Eisner's (1992) *Ecology* is the *Curricular* dimension. According to Eisner (1992), when reforming school curriculum, the most important decisions are "those related to content [or what is taught]" (p. 622), as well as the way educational experiences are to be organized and how the knowledge is to be assessed. Some other questions a reform participant might ask when considering the *Curricular* are: *What value does the school place on specific topics by including or not including them in the curriculum?* and *Are the school's aims reflect in the planned curriculum?*

The fourth dimension is the *Pedagogical* dimension. Curriculum reform cannot occur in isolation or without attention to how the curriculum will be taught. In turn, whether or not teachers have the skills required to teach a new curriculum will also impact the degree of success in the school reform. Given these facts, those looking to promote change in schooling must not only pay attention to what is being taught but also

how it is being taught. Furthermore, it would benefit reform participants to focus on the difference between what teachers plan to teach and what actually gets taught (or the difference between the planned and the enacted curriculum), so that they can understand the interaction between these two dimensions and how they affect the other dimensions of schooling.

According to Eisner (1988), the final dimension that one must consider when planning school reform is the *Evaluative*:

> What we evaluate and the ways we evaluate have a profound effect on what we pay attention to school. We cannot achieve a balanced curriculum and better teaching if our evaluation procedures emphasize forms of performance that contradict or are inconsistent with [the] aims of schooling (p. 29).

Eisner (1992) asserts that the main form of evaluation in schools today is the achievement test, which fails to assess whether or not children can perform as students and whether teachers can perform as professionals. He further contends that such a narrow approach to assessment encourages "conservative [educational] practices" (Eisner, 1988, p. 29) and that it "directs students' attention to very limited goals" (p. 29). In order to remedy this situation, Eisner (1992) suggests that reform participants re-examine the aims and purposes of schooling, in order to develop instructional and evaluative systems that are consistent with those aims. He also recommends that schools organize their time, space and the curriculum in ways to support those evaluative systems.

With respect to Eisner's (1992) *Ecology* in general, it is important to note that the five dimensions interact and respond to one another. For example, the *intentions* of schooling influence the way schools are *structured,* how the *curriculum* is organized, how *teaching* is approached and how learning is *evaluated*. In turn, the *structure* of a

school (e.g., daily schedule) can dictate how its *curriculum* is organized, how *teaching* and learning is approached, how learning is *evaluated* and so on. In this respect, Eisner's (1992) framework is truly *ecological* in nature (Figure 9).

To help clarify my research purposes, I used Eisner's (1992) framework to help conceive of the True Leaves Charter School as an "ecological system" consisting of multiple dimensions. In turn, I used Eisner's (1999) *Ecology* as an organizational tool for my data collection and analysis. Based on the findings of this study, however, I would suggest that an additional component be added to Eisner's (1992) model—that being a respect for the *social, political* and *historical* contexts in which all school reforms take place (Figure 10).

School reform does not happen in a vacuum. Reforms are implemented within social, political and historical contexts that can affect how they are enacted. Take, for example, the case of True Leaves. The founding members opened their school in community with a diverse range of constituent groups. They also opened their school in an era when *accountability* was the driving force of school reform. The school opened during a severe economic recession, yet also at a time when concerns over the health of the environment were at the forefront of our nation's consciousness. Finally, the school opened in a community where an application for an Afro-centric charter school failed ten years earlier. Each of these factors appears to have influenced the opening of the True Leaves Charter School, both positively and negatively. Evidence of this can be found in the school's system of evaluation. Oriented around demonstrating student achievement, this portfolio-based system of evaluation failed to include metrics for how students would gain the knowledge, skills, behaviors and values needed to live sustainably in the world.

Figure 10: Eisner's Ecology of Schooling (1992)

Source: Eisner, E. W. (1992). Educational reform and the ecology of schooling. *Teachers College Record*, 93(4), 610-627.

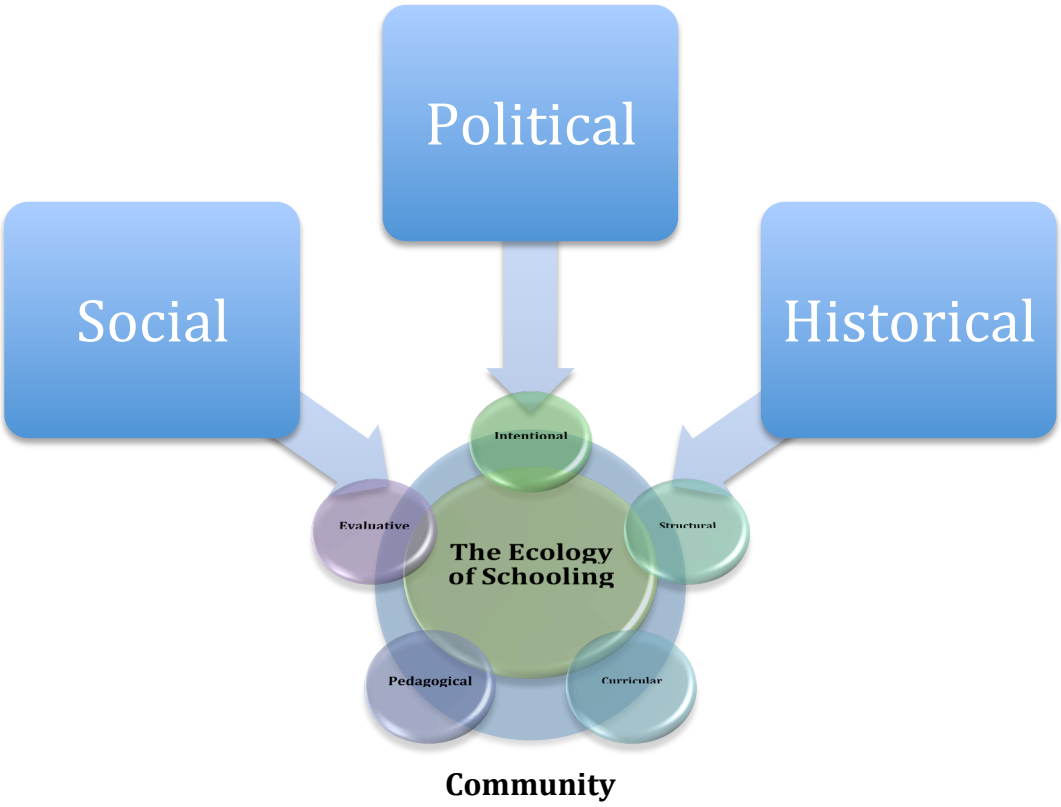

Figure 11: Eisner's Ecology within the Socio-Political Context of Community

According to Diana, the state chartering institution would not grant them their license to operate until the demonstrated how the school would prepare students to demonstrate their understanding of learning standards. Furthermore, all students would be expected to take and pass the state's high school exit exam. "We needed to look like every other school," Diana explained, when I asked her about her system of evaluation. One can see, then, how our nation's emphasis on accountability helped to shape True Leaves' system of evaluation.

Evidence of the impact of socio-political context can also be found in the public resistance to the school. Public concerns over the financial impact of True Leaves, over the school's ideological mission and over concerns about how it would support the needs of minority students in the community resulted in the founding members spending valuable time and resources to address these concerns. This of course, took time and energy away from other aspects of their school design, such as creating professional development opportunities for newly hired teachers. Of course, it didn't hurt that the school opened during a time period time when "sustainability" was the new buzzword in our nation's public discourse. Still, concerns over orienting the school curriculum around the concept of sustainability appeared to trump any positive gains received from this fact.

Uhrmacher & Matthews (2004) allude to the importance of socio-political and historical contexts when they recommend that Eisner 's (1992) framework be amended to include a consideration of *school-community relations*. According to Uhrmacher & Matthews (2004), communities can have a positive or negative impact on schools and classroom activities. The findings of this study add weight to this idea, but I would add that school communities are part of larger social and political systems—and that reform

participants need to be aware of the socio-political and historical contexts in which their reforms take place. By recognizing and working to understand these contexts, those involved in school reform may be better prepared to anticipate potential barriers to school reform. For example, had the founding members built capacity for their school in the local community by proposing their rationale for a school prior to submitting their charter application, they might have been met with less resistance.

Sarason's theories on charter schools.

In *Charter Schools: Another Flawed Educational Reform?*, Seymour Sarason (1998) discusses the "predictable barriers" (p. 29) facing charter school founders. Based on his research on educational change—Sarason (1998) cites a number of internal and external barriers to successfully creating new educational settings. These include: a preoccupation with the future, a lack of time and resources, power struggles between individuals and what he calls "failing attend to foreign affairs" (p. 27) or outside interests. In my case study of the True Leaves Charter School, I documented each of these constraints. Diana admitted to "spinning her wheels" at the beginning of this study—choosing to design a school website that lauded the intentions of True Leaves—rather than focus on what needed to be done to get the school up-and-running. The founding members of True Leaves were also pressured by a lack of time and resources—and they failed to attend to the "foreign affairs" of their community causing strife between individuals in the community. Thus, my findings confirm Sarason's (1998) assumptions and raise several questions.

First, I wonder if the founding members would have had an easier time opening

their school, if they had enlisted the help of an educational start-up company? According to Diana, they chose not to hire such a company because doing so would have compromised the ideals of their reform. Ironically, this happened anyway, since the founding members were forced to spend a majority of their time addressing structural concerns rather than planning their curriculum or approach to instruction. Nevertheless, I wonder if charter schools that utilize educational start-up companies are able to spend more time focusing on all of the dimensions of schooling, rather than just the structural? Furthermore, I wonder if there is any merit to Diana's claims. Does merely utilizing an educational start-up company comprise the educational intentions of a reform? Or do educational start-up companies enable reform participants to be more innovative by freeing up time normally associated with the logistics of schooling (e.g., securing a location, funding). These are interesting questions for educators to consider.

Secondly, I wonder if charter schools with more traditional aims (e.g., Core Knowledge, No Excuses, KIPP, etc.) have faced similar public opposition to their opening. I would speculate not, but if so, what does this say about charter schools and their ability to evoke meaningful change? Furthermore, what type of educational change is our country looking for? Are we looking to transform student thinking, like the founding members of True Leaves? Or is our goal to preserve the traditions of public schooling? If so, one wonders why new educational settings are needed for this purpose. One also wonders if charter schools with more transformative agendas are set up for failure from the beginning. Once, again, these are interesting questions to consider.

I also wonder if charter schools that open within a school district have an easier time than charter schools that open outside of a school district. Initially, Diana and her

colleagues asked to open their school within the Greendale School District, but their request was denied. Charter school founders might benefit from studies than compared the success rate of schools within districts versus those outside of districts.

Questions for Further Research

The findings of this ten-month case study hold significance for those working in the field of sustainability education and for education in general. Yet, there is still much research to be done. For example, it might be interesting to know *why* supporters of True Leaves felt like it was a worthy cause and *why* those opposed to the school's opening were against it. A better understanding of these participant's realities might help those working to enact sustainability education to anticipate and address community concerns. It might also be enlightening to know how these participants conceptualized sustainability, to see the extent to which public misconception about the term played a role in the community's resistance.

Additional research might also be conducted on charter schools themselves, as a result of this study. Charter school founders might benefit from a comparison between the success-rate of schools that open within districts versus those that open outside of districts. Another study that might benefit those looking to open a charter school might look to capture the complexities involved in opening a charter school with and without an educational start-up company. Yet another study might attempt to compare charter school missions and their impact on the implementation process.

Closing Remarks

Translating the concept of sustainability into educational practice is not an easy task. Without a model to follow or adapt, educators looking to enact sustainability education are left to create their own processes for what this approach to schooling should look like. Such a process is challenging. It calls for—among other things—an examination of the core knowledge, attitudes, beliefs, skills and behaviors that individuals are expected to possess as inhabitants of a sustainable world. It also calls for an anticipation of the possible barriers to implementation, including how the concept of sustainability will be perceived and how this orientation towards schooling fits within the larger historical and contemporary aims of education in a society. Those looking to enact sustainability education must also consider the degree to which they will compromise in order to achieve their intentions.

WORKS CITED

Abdulkadiroglu, A., J., Angrist, , S. Cohodes, S. Dynarski, J. Fullerton, T. Kane, and P. Pathak. (2009). ―Informing the Debate: Comparing Boston's Charter, Pilot and Traditional Schools,‖ The Boston Foundation.

Adkins, C. & Simmons, B. (2002). Outdoor, experiential, and environmental education: Converging or diverging approaches? ERIC Clearinghouse on Rural Education and Small Schools (ERIC Document Reproduction Service No. EDO-RC-02-1).

American Institutes for Research. (1999). *An educators'guide to schoolwide reform*. Arlington, VA: Educational Research Service.

American Institutes for Research. (2005). *Effects of outdoor education programs for children in California*. A.I.R.: Palo Alto, CA.

Apple, M.W. (1993) The politics of official knowledge: Does a national curriculum make sense? *Teachers College Record*. 95 (2). 222-239.

Athman, J. & Monroe, M. (2004). The effects of environment-based education on students' achievement motivation. *Journal of Interpretation Research*, 9(1): 9-25.

Bader, D.C., Covey, C., Gutowski, W.J., Held, I.M., Kunkel, K.E., Miller, R.L, Tokmakian, R.T., Zhang, M.H. (2008) *Climate Models: An Assessment of Strengths and Limitations*. A Report by the U.S. Climate Change Science Program, [U.S. Department of Energy.] Washington, DC, USA.

Bain, A., & Lancaster, J. (2006). Inclusion and Comprehensive School Reform: Lessons from the Field. The Australasian Journal of Special Education. 30(1) 39-50.

Ball, D. M., & Cohen, D. (1999). Developing practice, developing practitioners: Toward a practice-based theory of professional development. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession: Handbook of policy and practice* (pp. 3–32). San Francisco, CA: Jossey-Bass.

Baldridge, J. V. & Deal, T. (eds.) (1983). *The dynamics of organizational change in education.* Berkeley, CA: McCutchan Publishing.

Bandu, D., Bongartz, H. Ghanawi, A.G. & Gopal, B. (eds). (1993). *Environmental education for sustainable development.* New Delhi: Indian Environmental Society.

Barrett, M.J. (2007). Homework and fieldwork: Investigations into the rhetoric-reality gap in environmental research and pedagogy. *Environmental Education Research, 13* (2), 209-223.

Bauman, L.J., Stein, R. & Ireys, H. (1991). Reinventing fidelity: The transfer of social technology among settings. American Journal of Community Psychology. 19 (4), 619-639.

Berman, P. & McLaughlin, M.W. (1979). *An exploratory study of school district adaptation.* (R-2010-NIE). Santa Monia, CA: Rand Publishing.

Berands, M. Bodilly, S. & Kirby, S.N. (2002). Looking back over a decade of whole school reform: The experience of new American schools. *Phi Delta Kappan*. 84(2),168-175.

Berends, M., Chun, J., Schuyler, G., Stockly, S., & Briggs, R.J. (2002). *Challenges of conflicting reforms: Effects of New American Schools in a high-poverty district*. Santa Monica, CA: RAND.

Bernard, Russell H. 2002 *Research Methods in Anthropology: Qualitative and Quantitative Methods.* Walnut Creek: AltaMira Press.

Blewitt, J. & Cullingford, C (eds) (2004). *The sustainability curriculum: The challenge for higher education.* Sterling, V.A.: Earthscan.

Bishop, S. (2004). The Power of Place. *English Journal*, 93(6), 65–69.

Bowers, C.A. (1995). *Educating for an ecologically sustainable culture: Rethinkng moral education, creativity, intelligence, and other modern orthodoxies.* Albany: State University of New York Press.

Bowers, C.A. (2001). *Educating for eco-justice and community*. Athens: The University of Georgia Press.

Booker, K., S. Gilpatric, T. J. Gronberg, and D. W. Jansen, . *Charter School Performance in Texas,* College Station, Tex., Private Enterprise Research Center Working Paper, Texas A&M University, 2004.

Braus, J., & Disinger, J. F. (1998). Educational roots of environmental education in the United States and their relationship to its current status. In M. Archie (Ed.), *Environmental education in the United States – past, present, and future*. Troy, OH: North American Association for Environmental Education.

Bromley, D. B. (1986). *The case-study method in psychology and related disciplines*. Chichester: John Wiley & Sons.

Brookover, W.B., & Lezotte, L.W. (1979). *Changes in school characteristics coincident with changes in student achievement* (Occasional Paper No 17). East Lansing: Michigan State University, East Lansing Institute for Research in Teaching. (ERIC Document Reproduction Service No ED 181 005)

Brundliand, G. H. (1989). *Our common future: The World Commission on Environment and Development.* N.Y.: Oxford University Press.

Buckley, J. & Scneider, M. (2007). *Charter schools: Hope or hype?* Princeton, N.J.: Princeton University Press.

Callison, W. (2003). *Charter and community schools: A director's handbook.* Lanham, M.D.: The Scarecrow Press, Inc.

Campbell, C. & Fullan, M. (2006). *Unlocking the potential for district-wide reform. Report prepared for The Literacy and Numeracy Secretariat*. Ministry of Education, Ontario, Canada.

Castro, F.G. Barrera, M., & Martinez, C. (2004). The cultural adaptation of prevention interventions: Resolving tensions between fidelity and fit. *Prevention Science*. 5(1), 41-45.

Chawla, L. (2007). Childhood Experiences Associated with Care for the Natural World: A Theoretical Framework for Empirical Results, Children, Youth and Environments 17(4), 144-170.

Cohen, D .K., & Hill, H. (2001). *Learning policy: When state education reform works.* New Haven, CT: Yale University Press.

Cotton, D. R. E. (2006). Implementing curriculum guidance on environmental education: The importance of teachers' beliefs. *Journal of Curriculum Studies, 38,* 67–83.

Creswell, J. (2007). *Research design: Qualitative, quantitative, and mixed methods approaches.* Thousand Oaks, Ca: Sage Publications.

Cutter-Mackenzie, A., & Smith, R. (2003). Ecological Literacy: the missing paradigm in environmental education (part one). Environmental Education Research, 9(4), 497-524.

Datnow, A. (2000). Working together for reliable school reform. *Journal of Education for Students Placed At-Risk.* 5(1),183-204.

Datnow, A. (2002). Can we transplant educational reform, and does it last? *Journal of Educational Change*. 3, 215-239.

Datnow, A. (2005). The sustainability of comprehensive school reform models in changing district and state contexts. *Educational Administration Quarterly.* 41(1), 121-153.

Disinger, J. (1983). Environmental education's definitional problem. In K. Fairman, Y. Barrett, D. Bones, J. Goodwin, K. Chung, & N. Osborne (Eds.), *EE reference collection.* (pp. 9-21). Dubuque, IA: Kendall/Hunt Publishing Company.

Disinger, J. F. & Monroe, M. C. (1984). *Defining environmental education, EE toolbox.* Ann Arbor, MI: National Consortium for Environmental Education and Training, School of Natural Resources, University of Michigan.

Disinger, J. F. (2005). The purpose of environmental education: Perspectives of teachers, governmental agencies, NGOs, professional societies, and advocacy groups. In E. A. Johnson, & M. J. Mappin (eds.), *Environmental education and advocacy* (pp. 137–157). Cambridge UK: Cambridge University Press.

Edmonds, R. (1979). Effective schools for the urban poor. *Educational Leadership*, 15-23.

Eisner, E. (1988). The Ecology of School Improvement. *Educational Leadership*. 45 (5), 24-29

Eisner, E. (1992). Educational Reform and the Ecology of Schooling. *Teachers College Record*. 93(4), 610-627.

Eisner, E. (1994). *The Educational Imagination: On the Design and Evaluation of School Programs*, 3rd ed. New York: Macmillan College Publishing.

Eisner, E. (1992). The Promise and Perils of Alternative Forms of Data Representation. *Educational Leadership*. 26(6), 4-10.

"emergence, *a., n.,* and *adv.*" The Oxford English Dictionary. June 2010. OED Online. Oxford University Press. 30 April 2011 <http://dictionary.oed.com/>.

Elmore, R. F. (1995). Teaching, learning, and school organization: Principles of practice and the regularities of schooling. *Educational Administration Quarterly, 31,* 355-374.

Expeditionary learning Schools. (2008). Our Approach. *Expeditionary learning Schools.* Retrieved 08/11/2009, from http://elschools.org/our-approach.

Finnigan, K., N. Adelman, L. Anderson, L. Cotton, M. B. Donnelly, and T. Price, *Evaluation of the Public Schools Program: Final Report,* Washington, D.C.: SRI International, 2004.

Fullan, M. & Pomfret, A. (1977). Research on curriculum and instruction implementation. *Review of Educational Research*. 47(1) , 335-397.

Fullan, M. (1985). Change processes and strategies at the local level. *The Elementary School Journal*. 85(3), 390-421.

Fullan, M. (2007). *The new meaning of educational change*. New York: Teachers College Press.

Fullan, M. (2008). *Curriculum implementation and sustainability*. In F.M. Connelly, (ed.) *The Sage handbook of curriculum and instruction*. (pp. 113-222). Los Angeles: Sage Publications.

Gall M.D., Gall J.P., & Borg, W. (2007). *Educational research*: *An introduction*. New York: Pearson.

Geertz, Clifford. (1973). Thick description: Toward an interpretive theory of culture. In *The interpretation of cultures: Selected essays*. New York: Basic Books.

Goldenberg, C. (2003). Settings for school improvement. *International Journal of Disability, Development and Education*. 50(1), 7-16.

Glass, K. T. (2007). *Curriculum mapping: A step-by-step guide for creating curriculum year overviews.* Thousand Oaks, CA: Corwin Press.

Glesne, C. (1999). *Becoming qualitative researchers: An introduction. (2nd ed.)* New York: Addison Wesley Longman.

Goodlad, J. and Klein, M. F. *Behind the Classroom Door.* Worthington, Ohio: Charles A. Jones.

Greene, J. P, G. Forster, and M. A. Winters, *Apples to Apples: An Evaluation of Charter Schools Serving General Student Populations*, Manhattan Institute: Education Working Paper, available at http://www.manhattaninstitute.org/html/ewp_01.htm; accessed September 2, 2004.

Gross, N. Giacquinta, J. & Bernstein, M. (1971). *Implementing organizational innovations: A sociological analysis of planned educational change*. New York: Basic Books Inc. Publishers.

Gronberg, T. J., & Jansen, D. W. (2001). *Navigating newly chartered waters: An analysis of Texas charter school performance*. Austin, TX: Texas Public Policy Foundation.

Gruenewald, D. (2003). Foundations of place: A multidisciplinary framework for place conscious education. *American Research Journal,* 40(3), 619-654.

Gruenewald, D.A. and Smith, G.A. (2007). *Place-based Education In the Global Age*. New York: Lawrence Erlbaum Associates.

Haimes, D. (1996). The implementation of a "function" approach to introductory

algebra: A case study of teacher cognitions, teacher actions, and the intended curriculum. *Journal for Research in Mathematics Education*. 27(5), 582-602.

Hargreaves, D. (2003). Education epidemic. *Phi Delta Kappan*, *84*(9), 693-700.

Herriott, R.E. & Gross, N. (1979). *The dynamics of planned educational change: Case studies and analyses.* Berkeley, C.A.: McCutchan Publishing.

Hlebowtish, P. *Foundations of american education*: Dubuque, IA: Kendall Hunt Publishing.

Horowitz, J. (2006). Sustaining successful school reform. *Curriculum Review*. 45(5), 14-15.

Hoxby, C. M., "How School Choice Affects the Achievement of Public School Students, paper prepared for Koret Task Force meeting, Hoover Institution, Stanford, Calif., 2001.

Hoxby, C. M., "Achievement in Charter Schools and Regular Public Schools in the United States: Understanding the Differences," 2004, available at http://post.economics.harvard.edu/faculty/hoxby/papers/hoxbycharter_dec.pdf, accessed January 25, 2005.

Hoxby, Caroline M., and Sonali Murarka. 2007. The Effects of New York City's Charter Schools on Student Achievement. Unpublished manuscript, Harvard University, Cambridge.

Hoxby, C. M., and J. E. Rockoff, "The Impact of Charter Schools on Student Achievement," Cambridge, Mass.: Harvard University, available at http://post.economics.harvard.edu, accessed November 15, 2004.

Hungerford, H.R., R. B. Peyton, and R.J. Wilke. (1983). Yes, environmental education does have definition and structure. *Journal of Environmental Education* 14(3), 1-2.

Hungerford, H. R. & Volk, T. L. (1990). Changing learner behavior in environmental education. *The Journal of Environmental Education,* 21(3), 8-21.

Hungerford, H.R, Litherland, R.A., Peyton, R.B., Ramsey, J.M., & Volk, T. L. (1996). *Investigating and evaluating environmental issues and actions: Skill development program*. Champaign, IL: Stipes Publinshing L.L.C.

Hungerford, H., & Volk, T. (1998). Changing learner behavior through environmental education. In H. Hungerford, W. Bluhm, T. Volk, & J. Ramsey (Eds.), *Essential readings in environmental education* (pp. 289–304). Champaign, IL: Stipes.

Hutchinson, D. (1998). *Growing up green: Education for ecological renewal.* New York: Teachers College Press.

Jennings, N., Swindler, S., & Coliba, C. (2005). "Place-based Education in the Standards-based Reform Era—Conflict or Complement?" *American Journal of Education*, 112, 44–65.

Jickling, Bob, & Wals, Arjen E. J. (2008). Globalization and environmental education: Looking beyond sustainability and sustainable development. *Journal of Curriculum Studies*, *40*(1), 1-21.

Jickling, B. (1999). Beyond sustainability: Should we expect more from education? *Southern African Journal of Environmental Education*, *19*, 60-67.

Jickling, B. & Spork, H. (1998). Environmental education for the environment: A critique. *Environmental Education Research*, 4(3), 309-327.

Jickling, Bob. (1992). Why I don't want my children to be educated for sustainable development. *Journal of Environmental Education*. *23*(4), 5-8.

Kiefer, Joseph, and Martin Kemple. 1999. Stories from our common roots. In *Ecological education in action*, edited by Dilafruz Williams and Greg Smith. Albany: State University of New York Press.

Knapp, C. E. (2008). Place-based curricular and pedagogical models: my adventures in teaching through community context. In D. A. Gruenewald & G. A. Smith (Eds.), *Place-based education in the global age: local diversity* (pp. 5-27). New York: Lawrence Elbaum Associates, Taylor & Francis Group.

Knapp, C & Woodhouse, J. (2003). "Place-Based Pedagogy: Experiential Learning for Culturally and Ecologically Sustainable Communities." Paper presented at the Experiential—Community—Workbased: Researching Learning Outside the Academy International Conference at Glasgow Caledonian University, Scotland, June 27–29, 2003.

Kvale, S. (1996). *InterViews: An introduction to qualitative research interviewing.* Thousand Oaks, CA: Sage.

Leavy, P. (2009). Method Meets Art: Arts-Based Research Practice. London: The Guilford Press.

Levy, H. II, D.T. Shindell, A. Gilliland, M.D. Schwarzkopf, L.W. Horowitz, (eds.). (2008). CCSP, 2008: *Climate Projections Based on Emissions Scenarios for Long-Lived and Short-Lived Radiatively Active Gases and Aerosols*. A report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research. Department of Commerce, NOAA's National Climatic Data Center, Washington, D.C., USA, pp. 1-100.

Lezotte, L. a McKee, K. (2006). *Stepping up: Leading the charge to improve our school.*

Okemos, MI: Effective Schools Products, Ltd.

Lieberman, G.A. & Hoody, J. *Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning.* San Diego, C.A.: State Education and Environment Roundtable.

Lincoln, Y. S. & E.G. Guba. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage Publications, Inc.

Louv, R. (2008). *Last child in the woods: Saving our children from nature-deficit disorder.* Chapel Hill, N.C.: Algonquin Books.

Marris, P. H. (1975). *Loss and Change*. New York: Doubleday.

Marshall, C. & G.B. Rossman (2006). Designing qualitative research. Beverly Hills, CA: Sage Publications, Inc.

Maxwell, J. A. (2005). Qualitative research design: An interactive approach (2nd Ed.). Thousand Oaks, CA: Sage Publications.

Maxwell, L. (2008). Opening a school draws on all of founders' skills. *Education Week*. 28 (3) 10-15.

Mckeown-Ice, R. (2000). Environmental education in the United States: A survey of pre-service teacher education programs. *Journal of Environmental Education,* 32(1), 4-11.

McLaughlin, M.W. (1976). *Implementation as a mutual adaptation: Change in Classroom organization*. pp. 171- 181. In Flinders, D. &Throton, S. (eds.) (2004). *The Curriculum Studies Reader*. New York: RoutledgeFalmer.

McLaughlin, M.W. (1987). Learning from experience: Lessons from policy implementation. Educational Evaluation and Policy Analysis. 9(2), 171-178.

McLaughlin, M. W., and J. E. Talbert. 2006. Building School-Based Teacher Learning Communities. New York: Teachers College Press.

Merriam, S. (1998). Qualitative research and case study application in education. San Francisco: Jossey-Bass.

Millennium Ecosystem Assessment. (2005). *Our Human Plant: Summary for Decision-Makers.* Washington D.C.: Island Press. 30

Miles, M. & M. Huberman. (1984). Qualitative data analysis. Beverly Hills, CA: Sage Publications, Inc.

Mishra, A. (1985) (Ed). *Environmental Education: Pre-Service Teacher Training Curriculum Development*, Document presented to UNESCO unpublished.

Mohammed, R.F. & Harlech-Jones, B. (2008). The fault is in ourselves: Looking at failures in implementation. *Compare.* 38(1), 39-51.

Moroye, C. M. (2007). Greening our future: The practice of ecologically minded teachers. *Dissertation Abstract International*, 68 (2), 271A. (UMI No. AAT 3253733) Retrieved, August, 4th, 2008, from Dissertations and Thesis database.

NAAEE (2004). *Excellence in environmental education: Guidelines for learning (Pre K-12).* Washington, D.C.: Author (3rd edition).

National Environmental Education Training Foundation (NEETF). (2000). Environment-based Education: Creating High Performance Schools and Students. Washington, DC: Author.

National Staff Development Council. (2001). *Standards for Staff Development (Revised).* Oxford, OH: NSDC.

Nelson, Rosenberg, B., Van Meter, N. (2004). Charter School Achievement On The 2003 National Assessment of Educational Progress, American Federation of Teachers, AFL-CIO.

Newmann, F.M. & Wehlage, G.G. (1995). *Successful school restructuring: a report to the public and educators*. American Federation of Teachers. Washington, DC.

Norton, B. G. (2005). Sustainability: A philosophy of adaptive ecosystem management. Chicago: University of Chicago Press.

O'Donoghue, T., Punch K. (2003). *Qualitative Educational Research in Action: Doing and Reflecting.* New York: Routledge.

Osberg, J., Pope, D. & Galloway, M. (2006). Students matter in school reform: Leaving fingerprints and becoming leaders. *International Journal of Leadership in Education.* 9(4), 329-343.

Orstein, A.C. and Hunkins, F. P. (2004). *Curriculum Foundations, Principles, and Issues (4th ed.)* New York: Alyn and Bacon.

Orr, D. (1992). *Ecological literacy: Education and the transition to the post modern world.* Albany, NY: State University of New York Press.

Orr, D. (2004). *Earth in mind: On education, environment, and the human prospect.* Washington D.C.: Island Press.

Palmer, J. (1998). Environmental education in the 21st century. London: Routledge.

Paul, G. & Volk, T.L. (2002). Ten years of teacher workshops in an environmental problem-solving model: teacher implementation and perceptions. Journal of Environmental Education, 33 (3), 10-20.

Plevyak, L. H., Bedixen-Noe, M., Roth, R. E., & Wilke, R. (2001). Level of teacher preparation and implementation of environmental education: Mandated and non-mandated environmental education teacher preparation states. *The Journal of Environmental Education, 32*(2), 28–36.

Powers, A. L. (2004). An evaluation of four place-based education programs. *Journal of Environmental Education, 35*(4), 17-32.

Robottom, I., Malone, K., & Walker, R. (2000). *Case studies in environmental education: Policy and practice*. Geelong, Victoria: Deakin University Press.

Rosenholtz, S.J. (1989). *Teacher's workplace: The social organization of schools.* White Plains, NY: Longman.

Samuel, M. (1991). *Educating for Sustainable Development: A Case Study of an Environmental Immersion School.* Unpublished Master's thesis, McGill University, Montreal, Quebec, Canada.

Sarason, S. (1966). *The school culture and processes of change.* Presented at the University of Maryland, Brechbill Lecture, January 10th, 1966.

Sarason, S. (1971). *The culture of the school and the problem of change.* Boston: Allyn and Bacon Inc.

Sarason, S. (1972). *The creation of settings and the future of societies.* Washington, D.C.: Jossey-Bass Inc.

Sarason, S. (1996). *Revisiting "the culture of the school and the problem of change."* New York: Teachers College Press.

Sarason, S. (1998). *Charter schools: Another flawed educational reform?* New York: Teachers College Press.

Schram, T.H. (2003). *Conceptualizing qualitative inquiry: Mindwork for fieldwork in education and the social science.* Upper Saddle River, New Jersey: Person Education, Inc.

Shiva, V. and J. Bandyopadhyay. (1987). *Ecological Audit of Eucalyptus Cultivation.* Publication of Research Foundation for Science, Techonology and Ecology, Dehradun, India.

State Education and Environment Roundtable (SEER). (2000). California Student Assessment Project: The Effects of Environment-based Education on Student Achievement. San Diego: Author.

Smith, G. (1978), The Meaning of 'Success' in Social Policy: A Case Study. *Public Administration*, 56, 263–281.

Smith G.A. & D.R. Williams. (1998). *Ecological education in action.* Albany, NY: State University of New York Press.

Smith, G. A. (2002). Place-based education: Learning to be where we are. *Phi Delta Kappan*. 83(8), 584-594.

Smith, G. A. (2002). Going local. *Educational Leadership.* 46 (2), 31-33.

Smith, G. (2002). Place-based education: Learning to be where we are. *Phi Delta Kappan*, 83, 584–594.

Smith, G. A. (2007). Place-based education: breaking through the constraining regularities of public school. *Environmental Education Research, 13*(2), 189-207.

Sobel, D. (2004). *Place-based Education: Connecting Classrooms & Communities*. Great Barrington, MA: Orion Society.

Sobel, D. (1996). *Beyond Ecophobia: Reclaiming the Heart in Nature Education*. Great Barrington, MA: Orion Society.

Spillane, J. (2000). Cognition and policy implementation: District policymakers and the reform of mathematics education. *Cognition and Instruction*. 18(2), 141-179.

Spork, H. (1992). Environmental education: A mismatch between theory and practice. *Australian Journal of Environmental Education, 8*, 147-166.

Stake, R. (1995). *The art of case research*. Thousand Oaks, CA: Sage Publications.

Sterling, S (2001) *Sustainable Education: Re-visioning learning and change. Schumacher briefing no.6.* London: Schumacher Society/Green Books.

Sterling, S. (2004). *Higher education, sustainability and the role of systemic learning.* In Corcoran P.B. & Wals, A.J. (2004). *Higher education and the challenge of sustainability: Contestation, critique, practice, and promise.* New York: Springer.

Stigler, J. W., & Hiebert, J. (1999). *The teaching gap*. New York: Free Press.

Stone, M.K. and Barlow, Z., Eds. (2005). *Ecological Literacy: Educating our Children for a Sustainable World*. San Francisco: Sierra Club Books.

Stapp, W. (1965). *Integrating conservation and outdoor education into the curriculum (K-12)*. Minneapolis, MN: Burgess Pub. Co.

Stevenson, R. (2007). Schooling and environmental education: Contradictions in purpose and practice. *Environmental Education Research, 13*(2), 139–153.

Strauss, A. & Glaser, B. (1967). The Discovery of grounded theory: Strategies for qualitative research. Chicago: Aldine.

Summers, M. & Kruger, C. (2003). Teaching sustainable development in primary schools: Theory into practice. *The Curriculum Journal*, 14(2), 157-180.

Sunnyside Environmental Middle School. (2009). About Us. *SEPTA*. Retrieved 08/11/2009, from http://www.pps.k12.or.us/schools/sunnyside.

Sunstein, B. and Chiseri-Strater, E. (2007). *Field working: Reading and writing research*. Third Edition. New York: Bedford/St. Martin's.

Talbert, J.E. McLaughlin, M.W. & Rowan, B. Understanding context effects on secondary school teaching. *Teachers College Record* 95(1), 45-67.

Theobald, P. (1997). *Teaching the commons: Place, pride, and the renewal of community*. Boulder: Westview Press

Tilbury, D. (1993) Environmental education: developing a model for initial teacher education, PhD thesis, University of Cambridge.

Tyack, D. & Cuban, L. (2007). *Tinkering towards utopia: A century of public school reform.* Cambridge, MA: Harvard University Press.

United Nations Educational, Scientific and Cultural Organization, (UNESCO). (1978). Framework for environmental education. In K. Fairman, Y. Barrett, D. Bones, J. Goodwin, K.Chung, & N. Osborne. *EE reference collection.* (pp. 28-32). Dubuque, IA: Kendall/Hunt Publishing Company.

United Nations Educational Scientific and Cultural Organization (UNESCO). (1997). *Educating for a Sustainable Future: A Transdisciplinary Vision for Concerted Action.* UNESCO Publication No. EPD-97/Conf.401/CLD.1). Paris: UNESCO.

United Nations Commission on Sustainable Development. (2008). *Feeding the World Sustainable Management of Natural Resources.* A report composed by the Food and Agricultural Organization of the United Nations. New York, NY. pp.1-19.

Volk, T. L., & M. J. Cheak. 2003. The effects of an environmental education program on students, parents, and community. *Journal of Environmental Education* 34, no. 4:

12-25.

Walcott, H.F. (1990). Writing up qualitative research. Beverly Hills, CA: Sage Publications.

Wells, A. (2002). *Where charter school policy fails: The problems of accountability and equity*. New York: Teachers College Press.

Wheeler, G., Thumlert, C., Glaser, L, Schoellhamer, M. & Bartosh, O. (2007). Environmental education report: Empirical Evidence, Exemplary Models, and Recommendations on the Impact of Environmental Education on K-12 Students. Washington, D.C.: Washington Office of Superintendent of Public Instruction.

Wheeler, K. (1985). International environmental education: A historical perspective. *Environmental Education and Information*, 4 (2), pp144-60.

Woodhouse, J., & Knapp, C. (2000). "Place-based Curriculum and Instruction: Outdoor and Environmental Education Approaches." Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools. (ERIC Document Reproduction Service No. ED448012).

Woodhouse, J. (2001). "Over the River and Through the 'Hood': Re-viewing 'Place' as a Focus of Pedagogy." *Thresholds in Education*, 27(3 & 4), 1–5.

Woodworth, Katrina R., Jane L. David, Roneeta Guha, Haiwen Wang, and Alejandra Lopez-Torkos. (2008). *San Francisco Bay Area KIPP schools: A study of early implementation and achievement: Final report*. Menlo Park, CA: SRI International.

Yin, R, (1984). *Case study research: Design and methods (1st ed.)* Beverly Hills, Ca: Sage Publishing.

Zimmer, R., Gill, B, Booker, K, Lavertu, S, Sass, T. & J. Witte. (2009). *Charter schools in eight states: Effects on achievement, attainment, integration and competition.* Santa Monica, CA: RAND Corporation.

APPENDIX

Definitions

Sustainability: is the capacity to maintain a certain process or state indefinitely; homeostasis.

Sustainable development: Economic development that meets the needs of present generations without compromising the ability of future generations to meet their own needs, (Brundtland Commission, 1987.)

Sustainable living: A way of living that allows humans to satisfy their own needs and aspirations without jeopardizing the health of the planet or the needs and aspirations of future generations (Capra in Stone and Barlow, 2005).

Planning for Implementation: A term first coined by Fullan and Pomfret (1977) to describe the point between the adoption of an educational change and the implementation of that change.

The Ecology of Schooling: An educational theory proposed by Elliot Eisner that argues the problems of school reform are ecological in character and that educators wishing to implement school reform must consider what he refers to as the *Intentional*, the *Structural*, the *Curricular*, the *Pedagogical*, and the *Evaluative* prior to implementing such a reform.

The *Intentional*: A term that Elliot Eisner uses to refer to as the aims of schooling or what schools intend to accomplish.

The *Structural*: A term that Elliot Eisner uses to refer to how a school chooses to organize the curriculum, the time spent on the curriculum, or the roles of individual living within a school *Ecology*. The *Structural* may also refer to the physical structure of the school building.

The *Curricular*: A term that Elliot Eisner uses to refer to the content of the curriculum, the kinds of activities used to help teach the curriculum and how the curriculum is organized.

The *Pedagogical*: A term that Elliot Eisner uses to refer to how the curriculum is planned for and enacted by teachers.

The *Evaluative*: A term that Elliot Eisner uses to refer to how the curriculum and student learning is assessed in schools.

Interview Guide: Founder

1. In your own words, what is the purpose of education?

2. Let's talk about the concepts of sustainability and sustainable development. What is sustainability? Why is sustainable development important?

3. What are the essential elements of an educational model that plans to educate students in the concept of sustainability and/or sustainable development?

4. How did you get involved with the opening of this school?

5. How does your personal and educational background prepare you to be a leader of a school designed to teach sustainability?

6. What is the purpose of the True Leaves Charter School?

7. Let's talk about the organizational structure of the school, (e.g., physical plant, grade configurations, class schedule, etc.) How will the school be organized to reflect its purposes?

8. What is the expected enrollment of the school?

9. Where will the school campus be located?

10. How will the school be funded?

11. What will the leadership structure of this school be?

12. What are the essential elements of a curriculum rooted in the concept of educating for sustainability?

13. In your opinion, what forms of instruction and/or pedagogy best support this approach to the curriculum?

14. Please describe the characteristics of an ideal teacher for this school.

15. What criteria you will use to hire teachers for this school?

16. How do you plan to educate teachers in the purposes of the school?

17. What professional development opportunities, if any, will teachers have prior to the opening of the school? After the school is open?

18. What role will teachers and students play in shaping the school experience?

19. What role will the district play in shaping the school experience?

20. What role will parents and community members play in shaping the school experience?

21. What forms of assessment and evaluation will be used in this school?

22. How will you know that students have understood the educational purposes of this school?

23. How do you plan to meet the meet the accountability demands of the local district and the school community?

24. How has the announced opening of this school been received?

25. What challenges do you anticipate in the opening of this school?

Interview Guide: Educational Planners/School Board Members

1. In your own words, what is the purpose of education?

2. Let's talk about the concepts of sustainability and sustainable development. What is sustainability? Why is sustainable development important?

3. What are the essential elements of an educational model that plans to educate students in the concept of sustainability and/or sustainable development?

4. How did you get involved with the opening of this school?

5. How does your personal and educational background prepare you to be a leader of a school designed to teach sustainability?

6. What is the purpose of the True Leaves Charter School?

7. Let's talk about the organizational structure of the school, (e.g., physical plant, grade configurations, class schedule, etc.) How will the school be organized to reflect its purposes?

8. What are the essential elements of a curriculum rooted in the concept of educating for sustainability?

9. In your opinion, what forms of instruction and/or pedagogy best support this approach to the curriculum?

10. Please describe the characteristics of an ideal teacher for this school.

11. How do you plan to educate teachers in the purposes of the school?

12. What professional development opportunities, if any, will teachers have prior to the opening of the school? After the school is open?

13. What role will teachers and students play in shaping the school experience?

14. What role will parents and community members play in shaping the school experience?

15. What forms of assessment and evaluation will be used in this school?

16. How will you know that students have understood the educational purposes of this school?

17. How do you plan to meet the meet the accountability demands of the local district and the school community?

18. What challenges do you anticipate in the opening of this school?

Interview Guide: District Administrators

1. In your own words, what is the purpose of education?

2. Let's talk about the concepts of sustainability and sustainable development. What is sustainability? Why is sustainable development important?

3. What are the essential elements of an educational model that plans to educate students in the concept of sustainability and/or sustainable development?

4. How did you get involved with the opening of this school?

5. What is the purpose of the True Leaves Charter School?

6. How will True Leaves Charter School be different from other schools in the district?

7. Why is there a need for this school in your district?

8. What community opposition has there been to this school?

9. What role will the district play in shaping the school experience?

10. What role will parents and community members play in shaping the school experience?

11. Who holds the chartering authority over this school?

12. What accountability demands will be placed on the school?

13. Let's talk about your school district policy. To what policies must this school adhere? From what district policies will the school be exempt?

14. How will this school be funded?

15. What is the expected enrollment of the school?

16. How has the announced opening of this school been received?