

Culturally Relevant Education and Skill-based Education for Sustainability: Moving Towards an
Integrated Theoretical and Methodological Framework

Elizabeth Echeverria

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Abstract

This study considers how educators can cultivate the skills that prepare students from all cultural backgrounds for an active role in creating a sustainable global future. These skills include systems thinking skills, collaborative skills, creative and critical thinking skills, self-directed inquiry skills, and skills for active citizenship. Through review of literature and original, qualitative research, the study examined the relationship between (1) the goals of skill-based education for sustainability and (2) the goals of culturally relevant education. This led to an examination of how they combine to mutually prepare students to be agents of positive change. Based on this research the study developed a theoretical framework that combined both strands of educational theory, creating one framework titled: *Culturally Relevant, Skill-based Education for Sustainability*. In addition, this research investigated practical applications of this framework in the classroom in order to serve as a resource for teachers.

Chapter 1 Introduction

In considering the world today and the challenges we face, it is clear that our ways of addressing our problems have fallen short of creating systems that will support themselves long term. In order for our world to head towards a healthy, equitable, and habitable future for all, we must change the ways we approach our problems in order to create systems and methods that consider the long term, far reaching effects of our actions. Because children's minds are still forming and growing, the education of our young people provides an incredible opportunity to create paradigm shifts that lead us towards the kind of thinking that will help us create a sustainable future. Therefore, this study considers how to cultivate, through elementary education, the *skills for sustainability* that will prepare our students to create a sustainable future for all. Furthermore, this study considers how *culturally relevant education* can support and enhance this *skill-based education for sustainability* in order to prepare students from ALL cultural backgrounds for an active role in our future.

By looking at the goals of these two strands of educational theory, it became clear that there were many strong correlations between the two. The study therefore developed a two-fold research objective. First, I aimed to analyze and combine these two educational strands of theory—skill-based education for sustainability and culturally relevant education—into one theoretical framework designed to prepare all students for active citizenship. I coined this combined framework: *culturally relevant, skill-based education for sustainability*. In addition to this framework, I discovered that there was little in the way of practical examples for how educators could put these newly integrated concepts into practice in the classroom. Therefore, the bulk of my original, qualitative research is devoted to finding tangible examples of how this framework can be put into practice.

It is necessary to define a number of terms relevant to sustainability as I use them in this study. I define ‘*sustainability*’ as the ability of a system of any size (environmental, economic, social, governmental, etc.) to be able to sustain itself presently and long term without creating negative effects. A ‘*sustainable*’ system is therefore a system that meets those criteria. It is also important to clarify that while the environment is of supreme importance, sustainability is an idea that includes much more than environmental stewardship. It is a way of thinking that considers *any* system—from a local childcare co-operative to global economics—through the lens of how to create a system that supports itself without waste, constant input, or inequities. It is also important to explicitly state that sustainability directly considers cultural and social systems. Therefore, the concept of sustainability includes an agenda towards global equity, peace, and justice, because in order for a cultural or social system to be sustainable, the equity and mutuality of all people involved in that system must be addressed. Finally, the term ‘*skills for sustainability*’ describes the foundational skills that will help our future citizens solve problems and make the complex decisions that will lead our world towards a more sustainable and equitable future.

On a more tangible level, I have defined *skills for sustainability* as skills that fall into the following five domains: (1) systems thinking skills, (2) collaborative skills, (3) creative and critical thinking skills, (4) skills of inquiry and self-directed learning, and (5) skills for active citizenship. Therefore, when I refer to the term *skills for sustainability*, I am referring to these five foundational ways of thinking and solving problems. By fostering these *skills for sustainability* in our educational system, we give the citizens and leaders of our global future the tools they need to consider the whole picture when designing and re-inventing the systems that our world depends on.

As an example, through these skills, one can consider agricultural production not simply through the lens of profit margins—production and consumption, but instead based on the far reaching impacts the chosen growing practices will have on the long term health of the farmland, the health of the people supplying and consuming the produce, the health and equality of the community that helps support that farm, etc. It teaches students to look beyond simple cause and effect, and instead look at the big picture. Only through this kind of thinking can we begin to solve the momentous problems that our world faces today.

With this goal of sustainable, big-picture thinking in mind, it becomes clear that grade school curriculum must be based not solely upon what pieces of information we teach, but also on how to create these skills that will help address any situation and any problem, regardless of the size or context. To throw an analogy in, this study focuses more on the fishing pole than the fish; it considers the overarching tools and skills needed for successful problem solving in general, rather than the finite bits of information that might help solve a specific problem or situation. Albert Einstein's quote, "the significant problems we face cannot be solved with the same level of thinking we used to create them" (The Cloud Institute for Sustainability Education, 2012, para. 1), helps get to the heart of this concept. Only through fostering *skills for sustainability* can we begin to shift how we approach problems and create equitable, long-reaching solutions both locally and globally. This is not to say that worldly *knowledge* related to sustainability is not also important, but simply that the most overarching and widely applicable aspect that we can teach across grade levels and curricula are *skills for sustainability*. Therefore, this study considers the skill-based aspect of education for sustainability.

Furthermore, in order to fully consider how educators can help students cultivate these skills, they must consider how to best educate students from *all* cultural backgrounds. Through

culturally relevant teaching, we ensure that all students have a fair chance to become successful global citizens with the skills needed to make positive change. Without cultural relevancy, we cannot address the needs of diverse students and we cannot help them meet their fullest potential in regards to any kind of learning—including the development of skills for sustainability.

While it is imperative that we learn to teach these skills in a way that is culturally relevant to our students, students from culturally diverse communities can also enrich the repertoire of skills for sustainability. Our country is fortunate to have diverse cultures and perspectives. Often these varied perspectives are not valued or explored in our schools. Through the increased valuing and exploration of these diverse perspectives, we can arrive at an enriched view of how to address the needs of our world. Therefore, by incorporating cultural relevancy into curriculum designed to foster skills for sustainability and social empowerment, we can prepare our students to be the positive leaders of our global future.

Statement of Problem

The future prosperity of human beings on this planet depends greatly on our ability to create paradigm shifts in order to consider the long-term effects of our actions. In order to make that shift, resources and institutional support must facilitate the cultivation of these sustainable ways of thinking through the education of our young people. Within this context of education, students from all cultural backgrounds must be considered and valued because they are an important part of our country, and because their variety of cultural backgrounds and knowledge bases provide great opportunities to inform our collective understanding of sustainability and equity.

Purpose Statement

The purpose of this study is to articulate effective practices for skill-based education for sustainability that include and value varied cultural perspectives and backgrounds. The research centers on the investigation of how culturally relevant education can combine to support skill-based education for sustainability in order to prepare all students for active global citizenship. This research leads to the development of a new, combined theoretical framework based on these two strands of educational theory. It then investigates practical examples in order to serve as a resource for classroom teachers.

Research Questions

1. How can the objectives and theories of culturally relevant teaching combine with that of skill-based education for sustainability to create a single, mutually beneficial strand of educational theory designed to prepare students for an active role in creating a sustainable and equitable global future?
2. How can this new strand of theory be put into practice in the classroom?

Theoretical Rationale

In considering how to teach skills for sustainability in a manner that cherishes and takes advantage of our culturally diverse national population, one important school of thought helped frame this study. This school of thought is the theory of cultural assets, which considers how culturally diverse funds of experience and knowledge that students bring to the classroom can enrich classroom learning, broaden student perspectives, and increase capacities to approach problems (Davis, 2002; Moll, Amanti, Neff & Gonzalez, 1992).

As scholars have attested, students with culturally and/or linguistically diverse backgrounds have different life experiences and different learning styles from those of their Anglo-American, white peers (Utley, Obiakor & Bakken, 2011). With this assertion in mind, the researcher examined the theory of cultural assets as a way in which to think about the backgrounds of culturally diverse students not as a liability, but as an asset in the classroom (Delpit, 1995). As Delpit (1995) puts it: "...rather than think of diverse students as problems, we can view them instead as resources who can help all of us learn what it feels like to move between cultures and language varieties, and thus perhaps better learn how you become citizens of the global community," (p. 69).

In this way, home cultures can be valuable resources and learning tools for the classroom (Brown-Jeffy & Cooper, 2011). This concept of looking at the wealth of knowledge and skills that culturally diverse home communities offer is an idea that has been championed by Moll et. al. (1992). They termed this cultural wealth 'funds of knowledge'. They claim that teachers can capitalize on the knowledge, skills, and resources of students' diverse households in order to create rich, meaningful, and successful academic experiences. They also note that their viewpoint, which asserts that culturally diverse households hold valuable resources for the classroom, contrasts with a prevailing viewpoint, which assumes that ethnically diverse, working class families are deficient of intellectual and academic worth. Davis (2002) further discusses the value of utilizing culturally diverse backgrounds as a way for solving world problems. He states:

...human imagination is vast in its capacity for social and spiritual invention. Our way of life in the West, with its stunning technological wizardry, is but one alternative rooted in a particular intellectual lineage...No single worldview, let alone one with

such a shallow history, holds all the keys to our survival as a species. Were societies to be ranked on the basis of technological prowess, the scientific West would no doubt come out on top. But if the criteria of excellence shifted, for example, to the capacity to thrive in a sustainable manner, with a true reverence for the Earth, our paradigm would fall short. This is not to imply that we are wrong, but rather to suggest humbly that we are not the paragon of human potential. These other cultures, so alive and so magical, are not failed attempts at modernity; they are vibrant facets of the diamond of human existence. (p. E8)

Both the assertions of Deplit (1995) and Moll et. al. (1992), which focus more specifically on education, and those of Davis (2002), which provide a more global perspective to this same concept, speak to the same basic point. They make it clear that the background wealth of diverse peoples is an incredible asset. Therefore, when considering skill-based education for sustainability, the theory of cultural assets is key to designing rich and productive educational experiences.

Assumptions

One assumption is that our educational system needs more emphasis on the development of sustainable thinking. Furthermore, based on my experience as a teacher, as a student, and through discussing this topic with other teachers from a variety of geographic areas, I have come to the conclusion that in the majority of situations our schools need to take advantage of the cultural richness of our diverse student population and to design curriculum that fosters the development of skills for sustainability.

Background and Need

In regards to this study, two primary needs have emerged and have helped frame this research.

The first is the concept that our world currently faces many significant global challenges that our students, the citizens and leaders of our future, must be prepared to address (Ahmed, 2010; Federico, Cloud, Byrne & Wheeler, 2003). The second is that skill-based education for sustainability needs to be taught in ways that meet the learning needs of culturally diverse students so that all cultural groups can help build a more sustainable future.

The Need to Face our Global Challenges through Education

Due to the massive environmental, social, and economic problems that we face globally, both the United Nations and many prominent scholars have asserted that education for sustainability is a primary objective of our educational system (Ahmed, 2010; Cloud & Federico, 2009; Federico, et al., 2003; Pigozzi, 2010). Realities such as global warming, as well as overarching degradation of environmental, social, and economic systems, illustrate the grim trajectory of our global society (Cloud & Federico, 2009; Federico, et al., 2003). In order to meet these needs, it has become clear that people must have the opportunity to develop skills that allow them to adapt, learn, and positively contribute to a sustainable future (Pigozzi, 2010). Therefore, it is through education that we can foster the skills, knowledge, and lifestyle changes necessary to meet the challenges of this century (Ahmed, 2010).

Orr (2002), a leading author and champion of this movement, describes the need for future leaders who will be capable of meeting the challenges that our world faces:

If we are to navigate the challenges of the decades ahead...we need leaders who see patterns that connect us across the divisions of culture, religion, geography, and time.

We need leaders who draw us together to resolve conflicts, move us quickly from fossil fuels to solar power, reverse global environmental deterioration, and empower us to provide shelter, food, medical care, a decent livelihood, and education for all. Most of all, we need leadership that is capable of energizing genuine commitment to old and venerable traditions as well as promoting new visions for a global civilization that preserves and honors local cultures, economies, and knowledge. (p. 38)

Federico, et al. (2003) builds upon this assertion by discussing how education is key to this process of preparing our students to be the leaders of the future. They assert that students need to be exposed to educational experiences that help them learn how to interact with the world through a lens of sustainable thinking. They assert that students must learn how to participate in democratic action and public policy; how to synthesize information across disciplines; and how to see patterns and construct a 'big picture', system-oriented view while considering multiple perspectives (Federico, et al. 2003). In short, they assert that we need to help students, as future leaders and citizens of our world, develop the skills to understand and solve the complex, interdisciplinary problems that we face globally (Federico, et al. 2003). Yet to spite this need, currently there is insufficient institutional support for K-12 education for sustainability (Federico, et al., 2003). Few educators in the U.S have worked explicitly to implement education for sustainability, and overall we currently are not adequately preparing our students to address the complex, interdisciplinary challenges present in our world (Federico, et al., 2003).

The Need for Sustainable Education that Considers Culturally Diverse Students

Chapter 36 of the United Nations agenda 21, a comprehensive agenda for global action, asserts that it is necessary to achieve environmental and development awareness in *all sectors of society*

in order to ensure a successful global future (United Nations Conference on Environment and Development, 1992). This assertion makes it clear that the goal of education for sustainability must involve all parts of society, including groups who are or have been marginalized.

Historically and presently in the United States, students who are not part of the majority Anglo-American culture are often not provided with education experiences that allow them to learn from a cultural point of relevancy and strength (Gay, 2000). Instead, these students must separate themselves from their natural ways of learning and approaching problems (Gay, 2000). Instead they must grapple with academics without any bridges that connect their own background knowledge and learning style to their school work (Gay, 2000). With this reality, it is not surprising that many minority student groups, especially Black, Hispanic, and American Indian students, have historically and continually lagged far behind that of their Anglo-American, white peers in academic achievement (Brown-Jeffy & Cooper, 2011).

Furthermore, as the population of culturally diverse students continues to increase, it will become more and more apparent if these population groups continue to be marginalized and underserved in our schools. In 2007, racial/ethnic minority students made up 44 percent of the total public school student population in the United States, which is a 22 percent increase from 1972 (Brown-Jeffy & Cooper, 2011). During the 2007-2008 school year, more than 5.3 million English Language Learners were in United States Schools, making up 10.6 percent of the K-12 student population (Tienda & Haskins, 2011). With these statistics it is not surprising that immigrant children are the fastest growing segment of the United States population (Tienda & Haskins, 2011). In 2008, white students were a minority in most large urban school districts (Tienda & Haskins, 2011).

It is clear that culturally diverse students are therefore a significant percentage of our future citizens and must be prepared to address the world's challenges and be prepared for the same opportunities to make a positive difference. Although the researcher must add that even if these students made up only one percent of the population, there is still no excuse for marginalizing and not meeting the needs of any student in our school system.

In addition, by failing to focus on the needs of culturally diverse students, we fail to take advantage of the richness of their cultural assets. As discussed earlier, by taking advantage of students' cultural knowledge, skills, and ways of approaching challenges, we can broaden the capacity of all students to solve the problems of the present and future. Therefore, we must consider the experiences of these students as valuable assets, rather than liabilities. (Davis, 2002; Delpit, 1995; Moll et al., 1992)

Chapter 2 Review of Literature

Introduction to the Review of Literature

In this section I explored how educators can cultivate skills for sustainability in a manner that incorporates the principles, goals and practices of culturally relevant education. I investigate how the valuing of cultural assets and the incorporation of cultural relevancy can synergize with skill-based education for sustainability in order to foster skills that prepare students to work towards a sustainable and equitable future.

With these objectives in mind, I first examined literature that addressed *skill-based education for sustainability* through a lens that considers what skills are key for preparing students to become active citizens for positive change. This section is titled: **‘What is Skill-based Education for Sustainability?’**

In addition, I examined current literature on the theories and practices of *culturally relevant teaching practices* by providing an overview of this school of thought. This section is titled: **‘What is Culturally Relevant Education?’** This section serves to provide a solid foundational context for the reader in order to set the stage for the following section. Within this topic, the researcher considered three separate aspects of culturally relevant education: culturally relevant *curriculum*, culturally relevant *instructional techniques*, and culturally relevant *classroom environment and learning context*.

For the third section, I considered literature that draws *connections* between the two strands of educational theory in order to begin to explicitly examine how culturally relevant education can support skill-based education for sustainability. In this section I consider how the objectives of both aims are interconnected, mutually supportive, and why they might merit

integration into one single, overarching pedagogical approach for application in our schools.

This third section is titled: ‘**How Does Culturally Relevant Education Support Skill-based Education for Sustainability: Moving Towards a Unified Framework**’

Lastly, the researcher considered how this new strand of educational theory, which is termed *Culturally Relevant, Skill-based Education for Sustainability*, can connect to other primary needs of diverse student populations; namely: literacy, English language development, and alignment with state and federal standards. In this way, the review further contextualized this study in regards to its presence in U.S. schools. This section is titled: **How Does this New Framework Fit into the Greater Context of Our Schools?**

I: What is Skill-based Education for Sustainability?

Introduction and Historical Context

In response to both the acknowledgement of our global lack of sustainability and the realization that education is a valuable tool to improve that situation; there has been a growing body of educational theory known as Education for Sustainability. Federico et. al (2003) has outlined the emerging historical context of Education for Sustainability.

The term sustainability started to widely emerge after the publication of the Brundtland Report in 1987, a report delivered by the United Nations World Commission on Environment and Development (World Commission on Environment and Development (WCED), 1987). This report considered mounting social, economic, and environmental issues and the need to create global, sustainable solutions in order to confront these issues (WCED, 1987).

The Brundtland Report was a leading force in beginning to educate the United States and the world about the need to a shift towards sustainable design across economic, social, and environmental lines (Federico, et. al, 2003). In 1992, largely in response to the Brundtland Report, the United Nations convened in Rio de Janeiro for the conference on Environment and Sustainable Development. In this conference discussed the same global need for sustainable development as discussed in the Brundtland Report. This conference became known as the Earth Summit, and part of the outcome was the adoption of Agenda 21, which was a comprehensive action plan that considered how to address mounting world issues through sustainable development. Chapter 36 explicitly highlighted the role of education as a driving force of this sustainable development initiative, and it stressed the importance of integrating the concepts of sustainable development across all aspects of education, through a multidisciplinary approach.

In response to this new impetus from the United Nations, the President's Council on Sustainable Development was created by executive order in 1993 to address economic, environmental, and social sustainability on a national level. Part of this task force developed the *Education for Sustainability: An Agenda for Action* (President's Council on Sustainable Development (PCSD), 1996), which outlined an action plan for integrating education for sustainability into national education curricula. (Federico, et. al, 2003).

Apart from national and international acknowledgements, one author, David Orr, was instrumental in bringing awareness to the role of education for a sustainable future. He wrote many books including *Ecological Literacy* (Orr, 1992), which stressed the importance of education in order to address the unsustainable and perilous trajectory of our world (Orr, 1992).

According to Federico et al. (2003), although the concepts of education for sustainability have grown, there is still a lack of broad, institutional support. In simpler terms, our nation needs to backup words with actions. Federico et al. (2003) based this claim on the fact that there is a lack of awareness with K-12 educators in regards to sustainability education policies. Few educators across the country have worked explicitly to integrate education for sustainability concepts into their classroom curriculum. Federico et. al (2003) continued by citing the following as proof that the response to education for sustainability has been slow.

Agenda 21 is not a “household word” in the U.S. and it is hardly referred to in any official documents at the federal or state levels. Agenda 21 has had virtually no official influence over the goals or operations of U.S. K-12 public or private schooling. Only a single state, Vermont, has educational standards that explicitly address sustainability. (p. 14)

Skills for Sustainability: The Five Skill Domains

In considering these developments towards education for sustainability, documents such as the ones described above make it clear that the scope of this movement encompasses a large and complex series of world issues. The researcher has chosen to focus on how educators can work to cultivate the *foundational skills* and habits of mind that prepare students to be leaders of our future and be able to tackle complex problems.

Education for sustainability generally encompasses both foundational skills and more specific, factual knowledge (Federico, et al, 2003). Therefore, this study focuses on a subsection of education for sustainability. This study does not devalue other aspects of education for sustainability. Rather, it zooms in on the foundational, skill-based aspects because they are broadly applicable across subject matter and grade level.

Based on the current compilation of literature on skills for sustainability, the study outlined five categories that describe the key skills that authors have highlighted as imperative to help our future citizens and leaders envision and actively endeavor towards a sustainable future. These include (1) systems thinking skills, (2) collaborative skills that value multiple perspectives, (3) creative and critical problem solving skills, (4) skills of inquiry and self-directed learning, and (5) the ability and motivation to engage in community action for sustainable development—locally to globally.

1. Systems Thinking: An Understanding of Interconnectedness

According to Richmond (1993), an emphasis on systems thinking in education is a key element that has the capacity to create a paradigm shift in the way people think and approach the world. Systems thinking involves thinking across disciplines in order to see the big picture (Federico et al. 2003). This includes an emphasis on the relationships between all systems on our planet

(Federico et al. 2003). This idea encompasses the interconnected nature of the environment, economics systems, government, health systems, and so on (Lewis, Mansfield, & Baudains 2008; Lynch, 1989). It can include the consideration of human-made systems, natural systems, and the links between the two, therefore addressing social, political, and environmental aspects (Lewis, Mansfield, & Baudains 2008; Lynch, 1989). It also considers if a given system can sustain itself without waste or constant input, thus being closely linked to the concept of sustainability (Federico et al. 2003). Overall, systems thinking for sustainability is a paradigm shift that looks at the whole picture and provides people with tools for approaching world problems from a vantage point that considers far reaching causes and effects in order to craft the most equitable and sustainable solutions (Federico et al., 2003; Lynch, 1989).

Hand in hand with systems thinking comes the need for students to consider the repercussions of their actions, due to the interconnected nature of the world they live in (Lynch, 1989). With this aspect of responsibility in mind, learning about interdependence and systems thinking helps students consider the ecological and social impacts that they create, based on the choices they make (Lewis, Mansfield, & Baudains 2008). Therefore, by incorporating opportunities to foster systems thinking skills in the classroom, educators can prepare students to become thoughtful, responsible citizens with the ability to approach the world in a manner that furthers sustainability (Cloud & Federico, 2009).

2. Collaborative Skills that Value Multiple Perspectives

Another key skill that prepares students to engage in a sustainable future is the ability to work cooperatively and collaboratively in order to develop ideas, strategies and solutions that take advantage of the gifts and perspectives of those around them (Federico, et al., 2003). This cooperative ability has also been identified not only as a key skill for sustainability, but also as a

key 21st century skill that will help students succeed in and prepare for the fast changing and multifaceted world in general (Federico, et al., 2003; Larson & Miller, 2011; Pigozzi, 2010).

This concept of cooperative skills includes communicative competency, interpersonal skills, the ability to work well on a team, and the ability to consider and value multiple perspectives (Federico, et al., 2003; Lewis, Mansfield, & Baudains 2008).

It also includes a *motivation* to work with others and create collaborative solutions on any scale from local to global (Cloud & Federico, 2009). Therefore, educators must provide opportunities for students to develop these skills and learn the value of collaboration as an ideal means for solving problems and constructing ideas (Cloud & Federico, 2009).

In regards to multiple perspectives, the goal is to help students value the rich diversity of human cultures (Lynch, 1989). In this way, we prepare students to learn from the different life experiences and approaches of others in order to find common ground with people from different vantage points *and* to better design solutions by taking advantage of the skills, capacities, and ideas of those around them (Federico, et al., 2003, Lynch, 1989).

In order to cultivate these skills of collaboration, educators must create a democratic, shared learning community in which teachers and students work together collaboratively throughout the learning process (Littledyke & Manolas, 2010). In this environment, students have ample opportunity to work collaboratively in groups to explore, learn, and solve problems (Littledyke & Manolas, 2010). Coleman (2010) notes that while school is often about testing and grading the individual, the real world is full of social, collaborative endeavors. Therefore, it is important to use the classroom as a place to model collaborative learning and problems solving by providing ample opportunity for group work and cooperative learning to take place (Coleman, 2010; Littledyke & Manolas, 2010). In this way, educators give students the time to practice and

develop these skills in the classroom so that they can apply them beyond the classroom (Littledyke & Manolas, 2010).

3. Creative, Critical Problem Solving Skills

As Coleman (2010) discussed, we cannot predict what the future will look like, but in this time of rapid change, we know it will be different. Therefore, we must help students develop the level of creativity they will need to create the solutions to problems that don't yet exist (Coleman, 2010). Furthermore, students must become critical problem solvers in order to evaluate and synthesize existing information, structures, and practices (Littledyke & Manolas, 2010). With these creative and critical problem-solving skills, students can learn to evaluate and respectfully challenge aspects of a system that are unsustainable, and develop creative and viable solutions and alternatives that move towards greater equity and sustainability (Federico et. al 2003; Littledyke & Manolas, 2010).

Part of critical thinking is the ability to consider and synthesize information; carry that knowledge to a greater context; and then draw relevant conclusions, challenge assumptions, and employ creativity to move forward in an educated and directed manner (Cloud & Federico, 2009). In order to do this, teachers must create educational experiences that allow students to practice synthesizing and evaluating information across disciplines (Cloud & Federico, 2009). Place-based, community-based projects can provide opportunities for students to practice using critical thinking skills in order to consider the multifaceted challenges that are present within their own communities (Halliday, 2006). Placed based projects also incorporate opportunities for students to take the needs and problems within one's local realm and find creative solutions to those problems (Coleman, (2010). Within the realm of interdisciplinary, place-based projects, creative problem solving skills are also fostered through exposure to arts, music, drama, and

creative writing (Coleman, 2010), all of which promote creative, multifaceted ways of considering the world. In this way, educators can help prepare students to have deep and valuable learning experiences, so they can use knowledge critically to develop creative solutions that move our complex and ever-changing world towards greater sustainability (Cloud & Federico, 2009).

4. Skills of Inquiry and Self-Directed Learning

Inquiry and self directed learning skills are crucial for sustainability because they empower individuals to constantly gain new knowledge and skills that allow them to be successful, active citizens throughout their lives (Ahmed, 2010). The term inquiry, also referred to as learner centered emphasis, describes a mode of learning in which students are able to direct their own investigations and develop their own questions (Littledyke & Manolas, 2010). In other words, it is a way of approaching learning that allows students to become actively aware of the learning process and be able to design and direct their own learning, therefore increasing their ability to be life-long, self directed learners (Littledyke & Manolas, 2010).

Teachers can support the development of this skill of self-directed inquiry by creating educational experiences in which they are the facilitators and guides (Littledyke & Manolas, 2010). For example, they can support the process of inquiry by helping students come up with student-generated questions and investigations (Littledyke & Manolas, 2010). By serving as facilitators, teachers allow their students to take an active role in designing their own learning experiences and exploring a topic, while still providing the support necessary to help students become more independent, directed learners (Littledyke & Manolas, 2010). By allowing student to actively design their own educational inquiries, teachers are preparing students to be life-long learners *and* are improving overall academic performance (Littledyke & Manolas, 2010). By

empowering students through inquiry and self-directed learning, the citizens of our future will have the tools they need to learn and grow, and to apply their ever-evolving knowledge base in order to move our world towards sustainability (Ahmed, 2010).

5. Ability and Motivation for Active Citizenship

The motivation and ability to put one's knowledge into action is an invaluable skill for the promotion of sustainability (Federico, et al., 2003). Teachers must explicitly assist students to develop social and political action skills in order to prepare them for an active role in decision-making and problem-solving (Lynch, 1989). This includes helping students learn how to put their ideas into action as well as nurturing a sense of responsibility to be actively endeavoring to create a more sustainable and equitable future for all (Lynch, 1989). In order to do this, teachers must create ample opportunity for students to learn and practice these skills thorough application in the classroom (Lynch, 1989) and in their local communities (Coleman, 2010).

II: What is Culturally Relevant Education?

Introduction and Context

Culturally relevant education (Brown-Jeffy & Cooper, 2011; Ladson-Billings, 1994) is a method that considers a wide variety of pedagogical aspects including curricular content, instructional techniques, and learning context; through a lens of cultural relevancy and success for all (Utley, Obiakor, & Bakken, 2011). Gay (2000) defines culturally relevant teaching as "using the cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning more relevant and effective for them" (p.29). Ladson-Billings (1994) asserts that it aims to empower students intellectually, emotionally, and socially; and to nurture student knowledge, attitudes, and skills. This concept is based on the claim that academic learning must be situated within the sphere of life experience and frames of reference of all students in order for the learning to be understandable, engaging, and effective (Gay 2000, Gay 2002). Therefore, culturally relevant education meets the learning needs of culturally diverse students by bridging the gap between home culture and school culture, therefore allowing students to learn through their strengths and use their strengths to broaden their spheres of experience (Gay 2000; Utley, Obiakor, & Bakken, 2011). This section is a foundational section that simply explores culturally relevant educational theory. This is to prepare for the following section, in which the study considers how cultural relevancy can support and connect with skill-based education for sustainability in order to move towards a combined framework.

Using Cultural Characteristics for Background, Yet Teaching to the Individual

Before considering the main components of this line of educational theory a few important points must be discussed in order to contextualize the overview. First, in regards to culturally relevant

education, Gay (2002) highlighted the importance of considering cultural traits in order to help educators understand student backgrounds. She warned that teachers must consider individual students rather than simply making blanket assumptions. She considers this point as an overarching necessity that should be taken into consideration when implementing any aspect of culturally relevant teaching. As she phrases it:

As is the case with any cultural component, characteristics of ethnic communication styles are core traits of group trends, not descriptions of the behaviors of individual members of the group. Whether and how particular individuals manifest these characteristics vary along continua of depth, clarity, frequency, purity, purpose, and place. However, expressive variability of cultural characteristics among ethnic group members does not nullify their existence. (Gay, 2002, p. 111)

Gay (2002) continues to warn that although it is important to consider the individual and not make assumptions, that act does not ignore the role that culture plays. She mentions that it is common for teachers to ignore culture because of a fear of stereotyping (Gay, 2002). Yet Brown-Jeffy & Cooper (2011) add that when teachers ignore the diverse backgrounds of their students, they are unable to fully understand how they learn and operate and are therefore unable to meet the academic, social, and emotional needs of those students. Therefore, rather than ignore culture, teachers must address it directly, gaining thorough knowledge about the relationship between the individual students and the cultures they are part of, and by developing a deep understanding of the interconnected relationship between culture, communication, and learning (Brown-Jeffy & Cooper, 2011; Gay, 2002). These authors therefore illustrate that a balance is necessary, in which educators consider student learning through the

context of culture, yet still consider the individual profile of each child within that context (Brown-Jeffy & Cooper, 2011; Gay 2002).

Culturally Relevant Teaching as an Integrative Approach

Another point that contextualizes this overview is that culturally relevant teaching is not simply about adding a new unit into the curriculum, but about transforming the way educators teach all subject matter (Gay, 2000; Lynch, 1989; Nieto, 1999). As Nieto (1999) states, “Instead of simply tinkering with a few cultural additions to the curriculum or adopting a new teaching strategy, a wholesale transformation of schools is in order if we are serious about affording all students an equal chance to learn,” (p. 71). Gay (2002) discussed the tendency for schools to compartmentalize different kinds of learning, such as emotional, cognitive, and physical learning. She explained that culturally relevant teaching is an integrated kind of learning where students learn math or reading while they practice active citizenship and learn about, share, and celebrate cultural diversity (Gay, 2002). These assertions are therefore important to keep in mind when considering the coming sections on culturally relevant education.

Curricular Content

An important aspect of culturally relevant teaching is the need to deliver curriculum that connects content to the cultural and experiential background of all students (Gay, 2000). This is a two-pronged initiative that starts with the educator gaining explicit knowledge about the cultural backgrounds of one's students (Gay, 2002) and the role that culture plays in the lives of those students (Utley, Obiakor, & Bakken, 2011). With that knowledge, teachers must create, adapt, and/or expand upon curriculum in order to infuse cultural relevancy into the learning experience (Utley, Obiakor, & Bakken, 2011). In this way, students are provided with learning

opportunities in a context in which they can feel academically successful and socially/emotionally empowered (Utley, Obiakor, & Bakken, 2011).

According to leading authors such as Gay (2000), Ladson-Billings (1994), and Nieto (1999), this can be done in a number of ways: By (1) designing *new curriculum* to ensure cultural inclusivity and relevancy, (2) by creating opportunities to build culturally relevant connections to the *current curriculum*, in order to link existing curriculum to student life experience, and (3) by emphasizing the cultural assets, such as the knowledge and skills that all students possess, in order to enrich the learning environment and allow students of different backgrounds to learn from each others' cultural wealth. (Gay, 2000; Ladson-Billings, 1994; Nieto, 1999, Rogers, 2008).

This curricular shift should be done to the greatest extent possible (Nieto, 1999), yet it is also clear that barriers such as mandated, standardized curriculum can hinder this task (Rogers, 2008). As a result, teachers must often resort to expanding upon and adapting current curriculum, rather than redesigning all classroom curriculum, in order to meet the needs of their students within their current political and administrative climate (Rogers, 2008). Rogers (2008) does, however, make it clear that teachers cannot use these barriers as an excuse for inaction, and must instead work creatively with what they have in order to expand upon and adapt curriculum, pushing the envelope as much as possible. Furthermore, teachers must also push for an overall reworking of our schooling systems on a governmental/institutional level in order to truly make a shift towards educational equity for all (Nieto 1999).

Crafting New Curriculum for Cultural Relevancy

In considering how to craft culturally relevant curriculum, there is a great need to insure that representatives of diverse students' cultures must be both significantly present in curriculum and

must be considered in a positive light in order to attribute value and respect to the culture of those students (Brown-Jeffy & Cooper, 2011; Gay, 2002). Brown-Jeffy & Cooper (2011) discussed the tendency of traditional curriculum to ignore the positive viewpoints of diverse cultures or to show those cultures as the vanquished losers. This can lead to a lack of involvement, connection, and empowerment of students from those cultures (Brown-Jeffy & Cooper, 2011).

To address this issue, Nieto (1999) stated that one-way curriculum should be designed for cultural competency is by providing students with materials from many different points of views. Nieto (1999) asserted that because of the tendency for textbooks to be biased and to often avoid contentious issues, there is a need to provide a variety of information from texts and other forms of media in order to create opportunities for students to develop critical thinking skills and a respect for multiple perspectives (Nieto, 1999):

Textbooks in all subjects are guilty of omissions and distortions; they generally exclude information about unpopular perspectives, or they give short shrift to the perspectives of disempowered groups in society. Few of the books to which students have access present the viewpoints of those who have been the backbone of our society, from the enslaved Africans to immigrant labor, to other working class people. (p. 104-105)

In this way both Nieto (1999) and Gay (2002) made it clear that instead of avoiding controversy or ignoring disparate points of view, culturally responsive teachers address the issues directly in a way that provides ample room for critical thinking and reflection by providing and eliciting various points of view for students to share and consider.

Gay (2002) also discussed the need to insure that symbolic curriculum, such as the

images on bulletin boards, awards, mottos, and celebrations, include all representative cultures. She claimed that this is important because students tend to learn to value what is present in their environment and not fully consider that which is absent from recognition or praise (Gay, 2002).

Brown-Jeffy & Cooper (2011) and Nieto (1999) discussed the importance of making sure cultural diversity is not simply confined to the commonly addressed superficial aspects such as food, holidays, dance, and heroes. While these things can have value, it is vitally important to dig deeper into culture to consider the underlying values, ways of approaching the world, complex histories, and so on, that are also important aspects of culture (Brown-Jeffy & Cooper, 2011; Gay, 2000; Nieto, 1999).

In order to meet the goals of cultural integration into the curriculum, and in order to insure that important, culturally relevant viewpoints are not omitted, educators must first learn about the representative cultures of the students (Gay, 2002; Nieto, 1999). This includes cultural characteristics, norms, and contributions; as well as cultural viewpoints of historical and current events and policies (Gay, 2002). By considering cultural aspects, teachers can develop more culturally sensitivity curriculum and can provide opportunities to share, value, and learn from each other (Gay 2000, Gay 2002). This knowledge also educates teachers so they can reflect upon and avoid assumptions about the ways in which students interact or learn (Utley, Obiakor, & Bakken, 2011).

Connecting and Expanding upon Current Curriculum

Acknowledging the reality that not every teacher can overturn current curriculum or redesign standardized mandates, teachers must often use the flexibility they do have to adapt and expand upon current curriculum in order to integrate as many culturally relevant connections as possible

(Rogers, 2008). Therefore, by adapting *current* curriculum to create these connections, educators can still build bridges to new kinds of knowledge and skills that are being taught at school (Gay, 2002).

Gay (2002) mentioned that one way to put this goal into practice is to spend a high percentage of instructional time providing examples and scenarios that are relevant to student experiences in order to teach new information and skills in a way that makes them more meaningful. Rogers (2008) discussed the emphasis on taking the mandated curriculum that one is required to teach and expanding upon it in order to provide opportunity for comparison and reflection. For example, a teacher might provide students with a reading excerpt from the standard curriculum in conjunction with other excerpts addressing a similar theme that relates more directly to the viewpoint and life experience of the students (Rogers, 2008). This provides the opportunity to let students work in small groups to discuss personal reactions, and reflect critically upon both texts in a way that is authentic and meaningful to those students. Rogers (2008) also mentions that these kinds of adaptations can build student confidence and help them value their own experiences and identities, while still addressing the standardized curriculum. This concept connects to Nieto's (1999) assertion that students must be provided with information and texts from many varying points of view and vantage points in order to promote critical analysis and make content relevant.

These examples illustrated ways to adapt and expand on current curriculum in order to promote academic achievement and empowerment. While it is undeniable that standardized curriculum can hinder one's efforts to craft curriculum that is relevant to the individual students in one's class, it is a necessity of the utmost importance, and it must be done to the greatest extent possible in order to insure the success of all students (Gay, 2000; Rogers, 2008).

Using Funds of Cultural Knowledge and Skills to Enrich Learning for All Students

In the light of the theory of cultural assets, discussed in Chapter 1, culturally relevant education also actively uses the wealth of knowledge from home communities to enrich learning in the classroom (Brown-Jeffy & Cooper, 2011; Moll et al., 1992). This is a multidirectional process in which all students in the classroom learn the value of various cultures and what those cultures have to contribute to the educational experience in the classroom (Brown-Jeffy & Cooper, 2011). By celebrating these various kinds of cultural background, educators can provide individuals with more tools to be successful at solving problems because they are familiar with more perspectives and approaches (Davis, 2002). It also builds respect for multiple perspectives so that students are more prepared to be academically successful and empowered to make positive changes in their communities and beyond (Gay, 2000). As an example of how this can be accomplished, Moll et al. (1992) suggested using home visits where teachers learn about the home cultures of students. This helps teachers learn how to tap into the knowledge and skill banks of the students and their greater home community (Moll et al., 1992). Roger's (2008) example of using student discussion to consider issues in text also takes advantage of students' funds of knowledge to enrich learning because it allows opportunities to share various points of view. In another example by Vega and Taylor (2005) students share the way they chose to solve various math problems in pairs or small groups, which provides students with more ways to solve problems. It also nurtures respect for multiple perspectives and different problem solving approaches, therefore bringing students' ways of thinking into the learning environment in order to enrich learning for all.

Instructional Techniques

In addition to crafting, adapting, and expanding upon the actual curriculum. Culturally relevant teaching is also about the *ways* that we teach: the strategies and instructional techniques that are used to present the curriculum and manage the classroom (Gay 2000; Nieto, 1999). This is important because research has shown that learning styles are correlated with ethnic backgrounds, and that different cultural groups approach learning in different ways (Gay, 2002). If the learning style of a student is not congruent with the teaching strategies employed in the classroom, it puts the student at a serious disadvantage (Nieto, 1999). As Nieto explained, "Home cultures and native languages sometimes get in the way of student learning not because of the nature of the home cultures or native languages themselves, but rather because they do not conform to the way school defines learning," (p.67). Once again, it comes down to building viable connections between the home cultural learning style of the students and the learning styles in the classroom (Brown-Jeffy & Cooper, 2011).

In regards to specific aspects to consider, current literature highlighted a number of prominent and reoccurring instructional approaches that address diverse learning styles. While every cultural background and individual background is different, there are a number of themes that have been suggested for addressing diverse needs of a multicultural classroom. The researcher presents these below not as a comprehensive, one-size-fits-all list, but rather as a sampling of some of the most prominent themes to consider based on current experts in the field. These suggestions should be adapted based on the individual nature of each classroom's cultural and experiential background. These instructional strategies include (A) teaching that considers diverse communication/organizational styles, (B) teaching that considers collaborative and individualistic learning styles, and (C) teaching that uses active learning methods to construct

meaning. Additionally, a section (D) highlights the importance stressed by Gay (2000; 2002) about the goal of using these learning styles to teach through students' strengths while still working to broaden students' horizons and modes of learning.

Considering Diverse Communication/Organization Styles

One important goal of culturally responsive teaching is the consideration of diverse communication/organizational styles in the classroom (Gay, 2002). While this is a large topic, this study will highlight here a few prominent examples to provide a foundation for this concept.

One important example of communication style that must be considered is that of the cultural protocol of participation in discourse. In most mainstream classroom environments, it is most common to hold the expectation of a passive-receptive style of communication. In this style of discourse, the speaker, usually the teacher, has the active role, and the listeners, usually the students, are expected to listen quietly and speak only at prescribed times. Most ethnic groups of color within the United States, however, tend towards a more active form of discourse, termed active-participatory discourse. In this style of discourse, the role of the speaker and listener is more flexible and interactive. The listener at any given time is expected to respond and provide commentary, feedback, and prompts. When there is no understanding of these varying cultural norms of discourse, teachers can make negative assumptions about students who appear rude or disruptive based upon differences in discourse style. Furthermore, when there is no consideration or usage of a more active style of communication within the classroom, it can end up silencing students who are tentative about operating in this new and foreign way of interacting. Therefore, educators must not only acknowledge these differences in discourse style, but also create opportunities to use styles of discourse that are more culturally familiar for their students. (Gay, 2000; Gay 2002).

Another aspect that Gay (2002) highlighted is the way individuals organize, engage with, and present ideas. In mainstream U.S. schools, students are taught to organize and present their ideas in a direct and linear manner. In speeches and essays, for example, students are asked to stick to the topic, and build a clear body of information to address and provide evidence for the main point. In debates, students are expected to present their case in an objective, direct, and factual manner that avoids unnecessary tangents or dramatic flair. Scholars have come to describe this kind of communication and organization of ideas as ‘topic-centered communication’. In contrast to this, most non-Northern European ethnic groups, including many African, Asian, Latino, and Native American groups, tend towards a different family of communication and organizational styles termed ‘topic-chaining communication’. This kind of communication often has a more personal, passionate, storytelling aspect to it. It often provides significant background information, weaves multiple lines of thought and topics into the content, contains more innuendo and metaphor, and often has the tendency to make the communication more conversational, complex, 'and flowery'. Once again, because topic-chaining and topic-centered styles approach communication from very different angles, there can often be unfair assumptions and confusion when students from these diverse backgrounds attempt to develop communication at school. It is therefore important that teachers are aware of these differences and consider students that tend towards a topic-chaining style as coming from a different way of communicating rather than making assumptions about their intelligence level or claiming that they simply are disjointed, rambling, or unable to stick to the point. In addition to this awareness, teachers must provide opportunities to positively consider *both* styles, such as providing opportunities to incorporate storytelling as a valuable writing style, so that students feel that the style that is more natural and familiar to them is valued. Furthermore, educators must dedicate

time to explicitly teaching new communication styles, such as a topic-centered essay, in order to provide all students with the support necessary to learn those new styles and be able to change styles comfortably for different audiences and different occasions. (Gay, 2000; Gay 2002).

Cooperative vs. Individualistic Learning

The tendency of a cultural group towards communal, collaborative interaction and problem solving is another aspect of culturally linked learning styles that is important to consider in the classroom (Gay, 2002; Nieto, 1999). This consideration is based on the assertion that, as Nieto (1999) put it, educators must consider and respect the "previously learned value of interdependence that generally is preferred in the homes of children of backgrounds other than European American," (p. 10). Gay (2002) adds to this by explaining that many students of non-European American background grow up in a cultural environment where the wellbeing of the group is considered over that of the individual. In this way, the success of the individual is achieved through the success of the group because it is acknowledged that there is a great level of interconnection and interdependence within a group (Gay, 2002). Therefore, students from this background operate in a mode where all members of a group are responsible for working towards mutual success (Gay 2002). Nobles (1973) discussed this same concept in terms of its prominence in African culture. He described that one's identity of self is tied inseparably to that of the group, which shows the great contrast between that view and the mainstream western view that focuses mainly on the individual (Noble, 1973). Gay (2002) also asserted that this tendency to learn through communal effort is congruent with the communal cultural systems of many African, Asian, Latin American, and Native American groups. In light of this, it is important to create ample opportunity for group collaboration, such as group problem solving, discussions of perspective, and cooperative learning efforts, in order to consider the natural learning modes of

culturally diverse students (Gay, 2002; Ladson-Billings, 1994). It has been shown that providing significant time for communal efforts and group learning has had positive effects on the academic achievement of students from culturally diverse backgrounds (Gay, 2002).

Students as Active Learners

According to Schmidt and Ma (2006), a key characteristic of a culturally relevant classroom is creating a learning environment where students are taking an active role in learning. This includes having students actively engaged in the learning process, where the teacher acts as a facilitator and the students are the one's taking self-directed ownership of the educational process, through reading, writing, listening, and speaking, in a way that actively helps develop and work through assignments (Schmidt and Ma, 2006). As Vega and Tayler (2005) explained, students become 'stakeholders' in the whole learning process. They claim that when students are actively involved and constructing knowledge for them selves, the learning is more enduring and applicable compared to when students are simply static receptors of factual knowledge (Vega & Tayler, 2005).

Littleddyke and Manolas (2010) addressed this concept of active construction of knowledge by explaining that it provides students with opportunities to direct their own investigation of knowledge and ask meaningful questions. In this way, students can base their learning on existing knowledge and points of view—building upon, and sometimes challenging, those views—and then construct further meaning through active learning (Littleddyke & Manolas, 2010). This way of learning, often termed constructivist learning, is based on an understanding of neurophysiology that considers how our brains construct meaning through active engagement (Littleddyke & Manolas, 2010). Therefore, students use their own experiences and knowledge to work through the learning process and to make sense of that learning (Littleddyke & Manolas,

2010). And as Gay (2002) asserts, the connection to experiences and previous knowledge is key to creating educational experiences that are most culturally relevant and that lead to greater academic success of students from diverse backgrounds.

Teaching Through Strengths While Broadening Horizons

In the former portion of this section the study explored ways that educators can become culturally knowledgeable and respectful of diversity in regards to instructional styles. Yet there is one more aspect that merits discussion. As discussed earlier, Gay (2002) addressed the importance of using teaching styles and communication styles that are congruent with the backgrounds of culturally diverse students. However, she also acknowledged that there are times when students must code-switch and be able to address certain audiences in certain settings. This includes using modes of communication and interaction that require familiarity with the mainstream, European-American style of communication and interaction (Gay, 2002). Therefore, it is important to still teach modes of mainstream European culture, yet to do it in a way that does not erode the value of their native ways of operation (Gay 2000, Gay 2002). To further illustrate this concept the researcher examined an interview article by Miner (1997) about the approach to linguistic diversity in Oakland schools. This interview discussed the work of a teacher at Precott School in Oakland to honor and respect Ebonics, the cultural African American dialect used by the majority of their students. The article illustrated an effort to teach mainstream communication styles (in this case, standard English) in a way that still values Ebonics. With this goal, teachers use literature that has Ebonics language patterns in it as well as using literature with Standard English patterns. These teachers emphasized curriculum that contained culturally relevant topics and styles while also introducing new styles and topics. In this way, there was a respect for, and a teaching through, the background and experience of the students, while also

teaching mainstream styles and content, so that students can gain the ability to code-switch depending on the situation and the audience. The interview sends the message that there is a way to emphasize the cultural and linguistic background of one's students and to teach through that lens, while still giving them the skills to interact in both their home culture as well as normative, white U.S. culture (Miner, 1997).

This also leads to the assumption that even if a teacher has a class with half students from normative, white U.S. culture and half from ethnically diverse cultures, teachers can provide varied, balanced instruction that highlights the cultural learning styles of both cultures because it benefits all students to learn how to navigate varying cultural modes of interaction and learning. Therefore, culturally relevant teaching strives to broaden the horizons of all students and use cultural diversity as a way to learn many different and valuable ways of approaching learning and interacting with the world.

Classroom Environment & Learning Context

The third pedagogical aspect of culturally relevant teaching is that of building a learning context, both in the classroom and beyond, where students feel valued, empowered, and motivated to become engaged members of their learning communities. This includes creating (A) high expectations for success, (B) facilitating a collaborative learning environment, (C) creating a safe place to value and discuss diversity, (D) nurturing a genuine care for one's students and communities, and (E) empowering students for action and community involvement.

High Expectations for Success

An important part of creating an equitable and culturally relevant classroom climate is holding the expectation that every student, regardless of his or her background, can be successful

(Ladson-Billings, 1994; Schmidt & Ma, 2006). Rogers (2008) added that students must believe that they can succeed, and that by showing confidence in the abilities of all students, one can promote social justice and foster success in the classroom. Gay (2002) asserted that teachers must care deeply about their students and must show that care by holding each and every student to a high standard of success.

Collaborative Learning Environment

Gay (2002) stated that building community among students from diverse backgrounds is one of the key elements to culturally relevant teaching. As discussed in the section above, since most students from non-European American culture tend to operate in a communal, collaborative mode of interaction, providing opportunities for group learning to take place promotes academic success for students from diverse backgrounds (Gay, 2002). Schmidt and Ma (2006) added that by developing construction around group and pair work, teachers can give students time to share ideas and think critically about their work in order to foster academic achievement and lower learning anxiety. They also stressed that this emphasis on group work must also be combined with individual accountability, in order to create a balanced approach where students can support each other, but where everyone is still expected to contribute and be accountable (Schmidt & Ma, 2006).

Creating a Safe Place to Value and Discuss Diversity

An important aspect of building culturally relevant classroom climate is to create a safe space that allows teachers and students to nurture everyone's cultural identity (Brown-Jeffy & Cooper, 2011). The key is to create an inclusive classroom climate that stresses a deep respect for diversity and that actively teaches students how to respect the value of cultural heritage and history (Utley, Obiakor, & Bakken, 2011). The culturally responsive classroom values every

student for who they are, and provides opportunities to celebrate and explore those identities (Utley, Obiakor, & Bakken, 2011). This valuing of diversity, in turn, helps build stronger student-teacher relationships (Brown-Jeffy & Cooper, 2011).

Care and Involvement

Nieto (1999) asserted that the relationship between students and their teachers is one of the critical aspects that promotes student learning and academic success. Gay (2002) also stressed the importance of showing genuine care for one's students. Brown-Jeffy and Cooper (2011) added to this by clarifying that it is important to show an interest in not just the students themselves, but also the students' cultural backgrounds, experiences, and overall well-being. They explained that when students can see that the teacher cares and wants to learn about them beyond the classroom, students become more motivated and engaged in learning (Brown-Jeffy & Cooper, 2011). Ladson-Billings (1994) also highlighted this importance of creating equitable relationships with students that extend beyond the classroom. She asserted that not only must teachers foster caring relationships between themselves and their students, but also foster caring student to student relationships (Ladson-Billings, 1994). Rogers (2008) explained that teachers can strengthen and extend these relationships by attending local community events, inviting elders into the classroom, and developing community based projects that honor the students' communities.

Empowerment and Action

Lastly, culturally relevant education emphasizes student empowerment by striving to help students realize that they have the power to make change (Silva & Langhout, 2011). It aims to provide students with the knowledge of social, political, and economic systems, and works to provide students with the skills and tools needed to be agents of change in their own

communities (Silva & Langhout, 2011). Culturally relevant teaching also provides students with an understanding that with knowledge comes a moral obligation to take social action to promote equity and freedom (Gay, 2002). With this aim in mind, Nieto (1999) asserted that active citizenship in the classroom leads to active citizenship in the real world. This illustrates the importance of education as a facilitator for social empowerment.

III: How Does Culturally Relevant Education Support Skill-Based Education for Sustainability: Moving Towards a Unified Framework

Through literary analysis, it became clear that there were many reasons why culturally relevant teaching supports skill-based education for sustainability. By considering these reasons, this section of the literary analysis is meant to bring the research full circle. Up to this point, the researcher considered both educational theories independent of one another in order to provide all the contextual information needed to move forward. In this section the study illustrates how current literature has made it clear that not only does culturally relevant education *support* skill-based education for sustainability, but also that the two strands of educational theory share so much in common that they can be combined into a mutually synergistic, single theoretical framework designed to prepare students from all cultural backgrounds to be the active promoters of a more sustainable global future.

As illustrated in section II, culturally relevant teaching provides an optimal learning experience for *all* students (Gay, 2002; Lynch, 1989). Therefore, when culturally relevant teaching methods are employed concurrently with skill-based education for sustainability, students from all cultural backgrounds are provided with an optimal opportunity to learn these skills. Similarly, culturally relevant education actively uses the wealth of knowledge from home communities to enrich learning in the classroom, which positively informs and enriches the development of skills for sustainability (Brown-Jeffy & Cooper, 2011; Moll et al., 1992).

Beyond these reasons, a number of important mutual goals have emerged from current literature. These mutual goals include: (1) action and empowerment; (2) active, self-directed learning; (3) critical thinking; and (4) cooperative learning and the valuing of multiple

perspectives. Through these mutual connections, it is clear that these two strands of theory are closely linked (Nordström, 2008). Consequently, the information presented in this section holds the conceptual background to move towards the creation of a new, single theoretical framework, presented in the appendix of this study.

Action and Empowerment

A primary goal of education for sustainability, whether skill based or knowledge based, is to prepare students to bring about positive change for a sustainable and equitable future for all (Cloud & Federico, 2009; Pigozzi, 2010). Similarly, culturally relevant teaching serves to empower students and provide them with the knowledge, tools, and motivation to become agents of change for the equity and freedom of all (Gay, 2002; Silva & Langhout, 2011). Therefore, these authors illustrate that both these pedagogical strands have strong action components that serve to empower and prepare students for action and citizenship. A number of authors have explicitly examined this intersection. Lynch (1989) illustrated the intersection of these goals by asserting that education must seek to comprehend and address social, economic, and cultural dimensions as well as emphasizing the interdependence of earth's systems and resources in order to foster environmental stewardship. Similarly, Nordström (2008) considered the intersection of culturally relevant education with education for sustainability by stating that they share many underlying core values and goals. Nordström (2008) explained that they both are based on a value of democratic society; and an emphasis on values, empowerment, global perspective, and active citizenship. Nordström (2008) asserted that these two educational strands must be considered in a wider context as part of an greater emphasis designed to prepare students to build a more equitable and sustainable world (Nordström, 2008). The author also emphasized the importance of considering sustainability as encompassing social, cultural, economic, *and*,

environmental aspects due to their inseparable and intertwined nature in our world (Nordström, 2008). For example, culture has been defined as being based on human adaptation to the local environment, and therefore social and cultural systems and activities are intimately intertwined with the environment (Nordström, 2008). Therefore, by creating an educational experience that focuses on skills for sustainability as well as creating culturally relevant learning and respect for diversity, these educational strands combine to prepare *all* students to make positive change (Nordström, 2008).

Critical Thinking as a Shared Objective

As Nieto (1999) asserted, critical thinking is an important part of culturally relevant teaching because students must have opportunities in school to practice thinking critically in order to construct meaning and consider biases. For example, as discussed earlier, students must be presented with texts from many various viewpoints so that they will have the opportunity to learn how to use critical thinking skills to consider concepts from many different angles (Nieto, 1999). Similarly with education for sustainability, as Littledyke and Manolas (2010) asserted, students must be given opportunities to develop critical problem solving skills in order to evaluate and synthesize information and practices. By using critical thinking skills to evaluate problems and practices, students will have a strong understanding of what presently exists so that they can start crafting positive change for the future (Federico et. al 2003; Littledyke & Manolas, 2010). This emphasis on critical thinking skills constitutes another intersection between cultural relevancy and skills for sustainability.

Collaborative Learning and Multiple Perspectives as a Shared Objective

Gay (2002) emphasized the importance of creating opportunities for collaborative learning because many minority cultural groups are accustomed to communal problem solving and

cooperative interaction. Incorporating ample time for collaborative work leads to a learning environment that is familiar and successful for minority students (Gay 2002). Beyond setting up a environment for successful learning, both Federico et al. (2003), in regards to education for sustainability, *and* Brown-Jeffy and Cooper (2011) in regards to cultural relevancy, discussed how cooperative learning allows students to take advantage of the diverse gifts and perspectives around them in order to enrich learning and problem solving. Federico et. al (2003) explained that this helps students learn how to work with others and value multiple perspectives in order to craft solutions and systems that will lead to a more sustainable and harmonious future.

Furthermore, while Gay (2002) and Nieto (1999) explained that students from many minority backgrounds come from a culture that understands the deep interdependence of family and community, Lynch (1989) added that in order to prepare students to engage in a sustainable future, it is key to help students understand that our world is composed of a complex series of interdependent systems. Once again, these authors illustrate another important connection between the goals of culturally relevant education and the cultivation of skills for sustainability; they both rely on collaborative learning and the valuing of multiple perspectives.

IV: How Does this New Framework Fit into the Greater Context of Our Schools?

When considering any aspect of teaching theory, one must consider it within the greater context of education. Therefore, in this section the study considers how skill-based education for sustainability and equity ties into the overall needs and context of the U.S. grade school classroom. More specifically, it considers other primary needs of students from diverse cultural backgrounds. These needs include literacy, English language development, and relevancy to state and federal standards.

Ties to Literacy and English Language Development

Authors have made it clear that in considering the needs of students, especially those who are culturally and/or linguistically diverse, literacy and language development are key (Ahmed, 2010; Calderón, Slavin & Sánchez, 2011; Pigozzi, 2010). It is crucial that all students develop functional literacy in order to possess the essential life skills they need to be successful, empowered global citizens (Ahmed, 2010; Pigozzi, 2010). In regards to English language development, it is helpful to understand that the fastest growing student population in the U.S. is the children of immigrants, half of which cannot speak English fluently (Tienda & Haskins, 2011). During the 2007-2008 school year, more than 5.3 million English Learners made up 10.6 percent of our U.S. public school population (Calderón, Slavin, & Sánchez, 2011). These students have lower academic performance compared to their native white peers (Calderón, Slavin & Sánchez, 2011). In light of this, it becomes clear that language and literacy gaps need to be addressed if students are expected to be successful students and high school graduates, ready to make a difference in the world (Calderón, Slavin & Sánchez, 2011). So the question

then becomes, how can educators address literacy and English development while fostering skills for sustainability in a culturally relevant manner?

Lynch (1989) answered this question by asserting that culturally relevant curriculum for sustainability does not focus on creating a new curriculum, but is instead based on an integrative approach. Culturally relevant, skill-based education for sustainability therefore addresses *all* learning needs (which includes literacy, English development, etc.) because it provides culturally relevant teaching and works to develop valuable life skills that lead to increased success in all academic endeavors (Gay, 2002; Lynch, 1989).

For example, in order to best promote English literacy development, Calderón, Slavin & Sánchez (2011) claimed that it is imperative that teachers use culturally relevant approaches such as showing respect for students' native language and allowing for collaborative and example-rich learning experiences in order to increase motivation and understanding. They explain that cooperative learning can help students with low English proficiency because it provides interactions with peers (often from the same language background) who can help explain concepts to them in their home language (Calderón, Slavin & Sánchez, 2011). Cooperative learning in a classroom environment of mutual respect also provides a safe and structured place to practice blossoming language skills (Calderón, Slavin, & Sánchez, 2011). Furthermore, these same skills of active, cooperative learning are also skills for sustainability (Federico, et al., 2003). Therefore, this example shows a direct connection between literacy/language development needs and culturally relevant, skill-based education for sustainability, because it simply focuses on the skills that lead to successful, active learning in general.

Standards as a Primary Focus

State standards constitute the framework for teaching and designing curriculum in public schools across the country. Therefore, it is important to examine how culturally relevant, skill-based education for sustainability can tie in with state and federal standards.

One answer to this, as described above is that culturally relevant, skill-based education for sustainability is a non-subject-specific, integrated approach that will increase academic success in any area (Gay, 2002; Lynch, 1989). It therefore furthers all state and federal standards.

Beyond this assertion, culturally relevant education for sustainability also has many explicit ties to state and federal standards. For example, according to Federico, et al. (2003), social studies, geography and science standards all require that students understand the interdependence and connections between the people, places, and things that make up our world. Therefore, through developing skills such as an understanding of interdependence and systems thinking, sustainability curriculum can tie in nicely to a standards-based curriculum (Federico, et al., 2003). In another example, Gay (2002) asserted that culturally diverse students tend to have a natural understanding of communal interdependence. Therefore, by using culturally relevant teaching strategies that take advantage of and promote this focus on collaborative learning skills, educators can further these same science and social studies standards that require understanding of the interdependence of people, places, and things in our world.

Although these authors show the feasibility and potential of integration between culturally relevant, skill-based education for sustainability and standards based curriculum, authors also make it clear that there are hurdles to consider. For example, prescribed curriculum based upon standardized testing can often hinder innovative teaching that is designed to promote

meaningful life skills *while* addressing standards (Veldt & Ponder, 2010; Rogers, 2008). Veldt and Ponder (2010) aptly described the problem as follows:

Real world experiences and meaningful curriculum projects are obsolete because their format does not support the test preparation regimen mandated by school districts. As a result, any request to deviate from the script often is met with resistance from the administration. High stakes tests become the driving focus behind the curriculum. (p. 46)

In light of this, Rogers (2008) asserted that while scripted curriculum can greatly limit a teacher's options, it *cannot* be an excuse for inaction, but rather an opportunity to employ creativity to expand and adapt standardized curriculum to whatever extent possible.

Chapter 3 Method

This study follows a qualitative research design. It uses narrative data based on interviews and an observational log written in the field.

Sample and Site

For the primary body of research, several teachers in US elementary classrooms were selected because they have delivered units and lessons that connect well to culturally relevant, skill-based education for sustainability.

In addition, as a secondary portion of research, the cultural background of a student group in rural Colombia was considered. This research section investigated the cultural assets and cultural background knowledge of a group of Colombian students. This served as an example of how educators can consider students' cultural backgrounds in order to enrich classroom learning and promote the development of skills for sustainability.

Ethical Standards

This study adhered to the ethical standards as proposed by the American Psychological Association (American Psychological Association, 2009). Additionally the research proposal was reviewed by my advisor and approved.

Access and Permissions

Teachers for the interview portion of my research were selected based on personal contact and recommendations.

The students in rural Colombia were students in my English language classes and my reflections based upon my experiences there in no way affected the daily routine of my classroom or my individual students.

Data Gathering Strategies

Interviews were used to gather data from the teachers involved in the first portion of my study. A narrative observational log was used to collect information about my observations in Colombia, South America.

Data Analysis Approach

Analysis of data from teacher interviews was performed through summary of the methodologies shared by each interviewee. For the observational log from Colombia, I reviewed the narrative for common themes.

Chapter 4 Findings

Part I: Teacher Interviews

Introduction: Description of Site and Data

For this portion of my research I interviewed a series of elementary educators and an expert on education for sustainability. This helped me define my new framework for *culturally relevant skill-based education for sustainability*, and gather examples of how that data would be put into practice. The expert I interviewed was Jaimie Cloud (personal communication, January 22, 2012) of the Cloud Institute for Sustainability Education. Through that interview I gleaned invaluable information, which informed my new framework on culturally relevant, skill-based education for sustainability. In addition, I gathered data from a number of interviews with educators who taught in both private and public school settings. The identity of the teachers has been kept confidential for privacy reasons.

Overall Findings

Interview with an Expert

From my interview with Jaimie Cloud, a number of important themes can be identified as having enriched my understanding of culturally relevant education for sustainability. My final framework, which can be found in the appendix section of this work, reflects in more detail the themes mentioned here. As part of this discussion, Ms. Cloud addressed the hurdles we must face when attempting to implement culturally relevant, skill-based education for sustainability. Lastly, she addressed how educators can approach situations in which cultural beliefs might

contrast with an emphasis on sustainability and how educators can confront that in a respectful way that still furthers the goals of education for sustainability.

First, Ms. Cloud highlighted the importance of thinking about and teaching the skills of critical problem solving in a holistic way. She stressed the importance of reflective thinking and the need to have a view that looks metaphorically upstream in order to envision solutions or reach goals in a way that consider root causes and far-reaching effects. In a more concrete sense, this could mean crafting educational experiences that nurture the ability to look at the big picture when solving a problem. It could mean creating opportunities for students to identify challenges by asking questions such as, ‘Is this the problem or is this a symptom of a bigger problem?’ In that way, we can help students start to consider the complexity of many real-life problems and learn how to craft thoughtful and far-reaching solutions. Part of this holistic kind of problem solving is giving student opportunities to learn how to transfer skills and knowledge from one area of study to another, so that they have the ability to take what they have learned in one context and apply it to any number of real-world problems. By providing students an opportunity to become reflective thinkers, students develop the skills necessary to design *flexible* solutions. In other words, to design solutions that can change and morph as conditions change and as other challenges or opportunities arise.

When asked what was one of the greatest hurdles to implementing skill-based education for sustainability, Ms. Cloud responded that it is challenging to shift and transform paradigms towards sustainable thinking. Most people in the U.S. have not experienced an educational mode that emphasizes skills for sustainability, nor have they been part of a system that holds those skills as paramount. That reality makes it challenging to change mindsets because if teachers are not familiar with a mode of operating, both in the classroom and beyond, then they need support

in order to learn how to teach in that way. In order to address this hurdle, there must be structural support within the school system to support that kind of professional training and redesigning of curriculum.

Finally, Ms. Cloud provided a valuable new view on how educators can address controversial issues in which cultural belief and/or practices clash with sustainable practices or ways of thinking. She suggested that one way to confront this issue is through the concept of cultural preservation and transformation. This concept holds that due to the ever-changing nature of the world, all cultures are constantly changing in order to adapt to new conditions. This is not just a modern process, but rather a process that has always taken place. In this process, the children of future generations naturally must answer the question of, ‘What are the aspects of culture that my generation must preserve as core cultural traits, and what needs to change as the world changes?’ This is a question that every person within any given culture has the right to ask and to envision. To help students understand this idea in a concrete way, teachers can have students study cultural groups that were dying, and have students investigate how the people evolved their cultural practices, and sometime revived older practices that had been lost, in order to contribute to the regenerative capacity of their culture and surroundings. For example if a child comes to school and says that their grandparents say that girls cannot learn, and it is clear that that is a cultural belief, rather than saying, “no, your grandparents are wrong,” one can help that student consider their culture and consider what they feel is important for them, as an individual, to identify with and what is part of the culture that they might wish to change or to disagree with. It also can be approached through a questioning approach that simply asks that student to consider the evidence in order to come to his or her own conclusions about the validity of an assertion or a belief. In that way, teachers are not forcing views or answers upon their

students, but they are instead providing the opportunity for students to answer those questions for themselves.

Teacher Interviews

Through my interviews with local educators I collected examples of how teachers put the concepts of my new framework into practice in their classrooms. The specifics of these examples, as well as the fully formed framework for *culturally relevant, skill-based education for sustainability* can be found in the appendix. Beyond these specific examples, in this section I highlight my findings in terms of a few common themes that came up during these interviews.

The first theme is the realization that this objective of culturally relevant education for sustainability can be applied in the classroom on a great variety of scales. On one hand, educators offered a number of finite examples for the classroom, such as creating word study groups to promote collaboration or creating a class constitution in order to model citizenship and democracy in the classroom. On the other end of the spectrum, educators shared large, interdisciplinary projects that addressed a number of the primary objectives in the framework through a more integrated approach. This wide scale of examples shows both the flexibility and potential of this framework for implementation within a large array of educational environments.

In considering this spectrum of examples, it also became clear that many educators felt that if there was the structural support to implement these larger-scale, interdisciplinary units of study, they stood out as an invaluable way to deliver culturally relevant skill-based education for sustainability. Concepts such as collaboration, creative visioning, transference of knowledge between disciplines, and active citizenship all wove together beautifully in these projects in order to hit all aspects of cultural relevancy and sustainability in a deeper and more meaningful way. Many educators, however, felt that especially in public schools, it was very challenging to create

this kinds of curricular programs because of curricular constraints and standardized testing emphasis. Yet even in the most restrictive settings, educators were able to implement systems and lessons that connected to the goals of this new framework.

Part II: A Colombian Case-Study on Cultural Assets

Introduction: Description of Site and Data

For this part of my study I lived and worked at a Foundation in Boyacá, Colombia, in a home for girls needing protection from abuse, abandonment, and other traumatic situations. In this setting, I was able to learn about, reflect upon, and take advantage of significant cultural assets in order to inform my teaching. These observations informed daily academic pursuit and helping me craft curriculum that connected with the experiences of the students—all while cultivating skills for sustainability and diversity. From my observations, a number of clear themes arose that provide an important example of how educators can consider and take advantage of the cultural and experiential backgrounds of their students.

Overall Findings

An Understanding of Interdependence and Mutual Respect

One theme that became clear during this study was the level of collectivism that appeared to be intrinsic to their cultural mode. In my experience, the older girls took on far more responsibility than I had observed with girls of the same age in the United States. They took care of the younger students, cooked, cleaned, and generally took responsibility for the wellbeing of the household. When I asked how they felt about having so much responsibility, they shared that

they worked hard because it was their responsibility to ensure the wellbeing of the group. When asked how that helped them personally, they shared that if the household ran well, then they would all benefit.

This illustrated a deep and intrinsic understanding of the interdependent nature of group dynamics and a need to contribute to the whole. During classes, it was clear that this belief and way of being carried over into an academic setting. Students commonly invested their energy in collaborating and helping those around them. These children, in an academic setting and beyond, took clear pleasure in taking on a role of responsibility as they helped or directed others.

In my classes I took full advantage of this tendency by promoting collaboration and peer teaching in order to optimize learning. By creating these learning experiences that used this collectivist cultural mode, I was able to enrich learning and help further students' ability to work as a team, share perspectives, and support each other's learning. I was able to take advantage of cultural assets as well as continuing to cultivate the skills that would help these students be successfully engaged citizens in their community.

Background in Sustainable Thinking & Opportunities to Foster Critical Thinking Skills

While learning about the background of these students I found that they were already familiar with many sustainable practices and principles. To provide a few examples, the small town where the group home was located had a project in which they had the children collect empty one-liter plastic water bottles, which were particularly common due to the lack of potable running water. The children would then search the town and their homes for trash such as food wrappers or old plastic bags, and they would fill the bottles with the trash, using a stick to compact the trash into the bottle until full and very sturdy. They then used these bottles with an adobe-like mortar to build buildings. In this case, students were helping build a small building at

the local secondary school, but this was being done on an even larger scale in other parts of the countryside. For example, a group of nuns helped build many houses for the poor in the slums of Medellin. The locals explained to me that the bottles not only provided structural support for the buildings, but it was a way to reuse the resources they had and to get the local children to pick up trash and clean up their community.

As another aspect of this, I considered the religious background of these students because it was an integral part of their lives. In regards to sustainability and environmental stewardship, I heard numerous sermons during my time with these children in which the priest or bishop spoke directly about the importance of caring for the environment. For example, the bishop of the local diocese spoke in length during a large Catholic Mass about how taking care and preserving the environment is part of taking care of God's gifts. He also spoke about working for the greater good and working together to create peace and prosperity because we all share the world as God's children. In this way, the leaders of their faith were also communicating messages about interdependence and stewardship of the resources around us.

On this same theme, the girls at the foundation would save many kinds of packaging to make art out of recycled trash, and there was a small artisan in the town who made amazing bags out of woven bits of old milk bags. Examples like these abounded everywhere, and it was clear that these children had been exposed to many concepts about limited resources, sustainable thinking and environmental stewardship.

Other examples of sustainably minded practices included local small farms that were using sustainable agriculture techniques, such as growing peas with corn in order to provide organic nitrogen to the soil. This method is used because peas and other legumes help fix nitrogen in the soil, which is a key nutrient needed for plant growth. The corn benefited from the

extra nitrogen because it required nitrogen-rich soil. The peas in turn benefited because the corn provided mild shade, which was important in that equatorial climate. In this way, the farmers were using systems thinking skills to create mutually beneficial systems that helped them avoid the use of synthetic fertilizers. Similarly, there were a number of areas outside the capital city where vermiculture stores were prevalent. These stores sold supplies and worms that were used to naturally turn food and plant waste into organic fertilizer using worms. This shows another way the locals conserved their resources by transforming food waste into a viable new product. These examples illustrate the level of creative problem solving and systems thinking to which these students were exposed.

In light of these examples, this is not to say that the town was a sustainable paradise. As in the United States, both sustainable practices and conventional practices were present. Next to the organic farm with the corn and the peas, there were workers spraying onions with harsh chemical pesticides, which wafted unhindered over the street on which we walked. At the foundation, they were still throwing away much of their food waste rather than composting it or using it to increase the fertility of their garden plot.

Consequently, I found myself working with children that had been exposed to a mix of practices and ways of thinking. This provided me with the opportunity to have students share their observations and cultivate critical thinking skills through the examination of different practices. I was able to take advantage of their cultural and experiential background in order to make them aware of the thinking behind the choices they and others around them were making, and to be able to develop the skills to critically consider those choices.

It was important that I promoted this process in a way that was not providing them with the answers, nor attaching personal judgments to certain kinds of practices. I did not tell them

that spraying chemical pesticides was wrong. Instead, I asked them questions that helped them examine all the facts for themselves. The greater goal was to help them develop the thought process of consider their actions and choices through a lens of considering the far-reaching results of one's actions. Part of this process included helping students use critical thinking, creative problem solving, and an understanding of interdependence to make decisions. Therefore, in this example, my knowledge of their experiential backgrounds allowed me to have a strong springboard from which to address issues and create meaningful dialogue that practiced and cultivated these skills.

The importance of Couching things in Familiar Terms

The last theme that became clear during my experience in Colombia was the opportunity and importance of using terminology and concepts that connected to students' background, experiences, and cultural points of view. For example, when dealing with behavioral issues, we would discuss why it is important to show respect because the concept of respect was familiar to them. As another example, students were constantly exposed to the idea of love, peace, and collective responsibility. Therefore, I addressed the development of positive classroom climate using those same, familiar terms because it increased their understanding. I also discussed ideas in terms of mutualism and harmony within our big family and within our community at the foundation, once again playing off the mutuality of their cultural upbringing. This example served to explicitly illustrate the importance of learning the cultural background of one's students in order to use terminology with which the students can connect to and fully understand.

Chapter 5 Discussion /Analysis

Summary of Major Findings

My findings illustrate that there are many ways to craft learning so as to target both cultural relevancy and skill-based education for sustainability. These findings illustrate extensive intersections between these two strands of educational theory. As a result, my findings converged into a new, preliminary framework that exemplifies the practical ways to implement these two educational strands as a single objective. The new framework is titled ‘Culturally Relevant, Skill-based Education for a Sustainable and Equitable Future.’ This new framework, including a compilation of practical examples, can be found in the appendix.

Connections Between Research Findings and Review of the Literature

The review of literature has illustrated the many connections between culturally relevant education and skill-based education for sustainability. It has also provided examples of how the goals of both of these strands can be put into practice in the classroom. In turn, my research findings provided many more examples of how these objectives can be put into practice, and illustrated the feasibility of applying my new theoretical framework in the classroom. Furthermore, my findings illustrated that there are many things that good educators are already doing that connect to both cultural relevancy and foster skills for sustainability.

Limitations/Gaps in the Study

While this study provides examples of how culturally relevant teaching for a sustainable and equitable future can be implemented, there are endless other ways to also implement the same agenda. Furthermore, each suggestion for implementation shared in this study was not actively evaluated within this study. Therefore, the suggestions must be implemented with a critical eye, in order to evaluate their effectiveness in regards to the needs of each unique group of students. In this way, this study serves as a first step towards learning how to implement a teaching agenda that serves to prepare students for participation in a sustainable and equitable future, yet it leaves ample room for further studies and analysis.

In regards to the cultural assets study in Colombia, the reader must consider this as simply an example used to illustrate the way in which an educator can dig deeply into the cultural background of their students in order to learn how their background can positively contribute to the classroom. It is important to keep in mind that this study reflects a single, unique group of students. It provides an example to consider; yet it should not be assumed that all students of Colombian or Latino backgrounds will possess the same cultural background. Instead, it is an example that can help facilitate a similar process of close examination and learning of the cultural background of other unique groups of students from any number of cultural backgrounds.

This study also was somewhat unique in that all the students in this classroom lived in the same house. While their life experiences differed in many ways, the culture that they were exposed to was very similar because they all lived in the same home, in the same town. In most U.S. classrooms, the cultural backgrounds of students are more disparate. Therefore, it is important for educators to consider the backgrounds of *each* student as separate entities and not

assume that his or her students all share the same background, even if all the students' families come from the same country or region.

Implications for Future Research

This study serves as a starting point in two ways. First, it leads to future studies designed to test the effectiveness of the practical examples provided in the appendix of this study. These studies could determine how universally effective the approaches might be on a wide range of student groups, and to what extent educators must adapt these practices in order for the methods to be tailored to the needs of each unique student group. Second, it opens the door for further research and compilation of practical applications based on the framework presented in this study.

Overall Significance of the Research

The significance of this research is its ability to unite the objectives of culturally relevant education and skills for sustainability in a way that shows that through the combination of these two synergistic educational strands, educators can prepare *all* students for active participation in a sustainable and equitable future.

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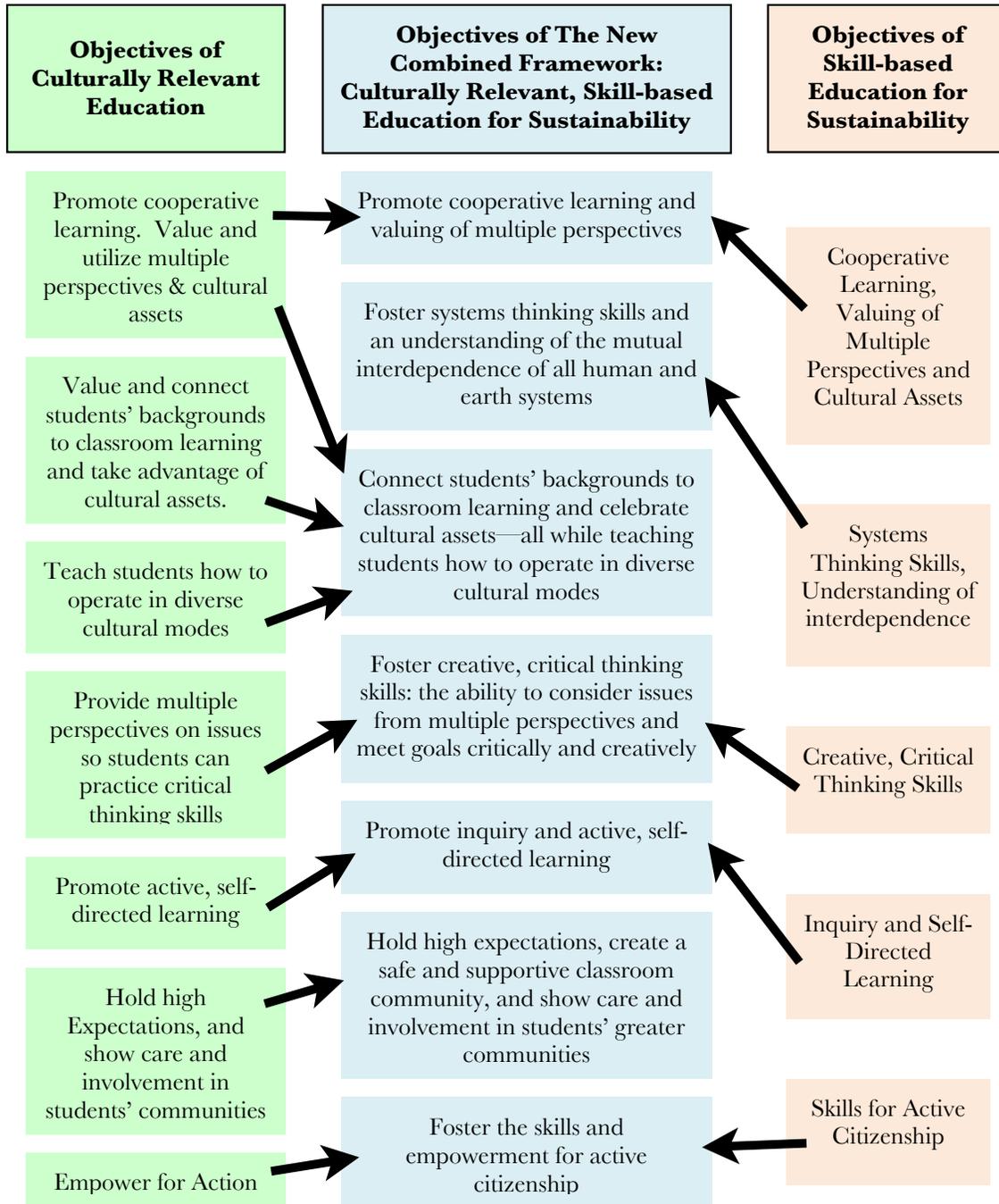
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A New Framework: Conceptual Overview and Practical Examples

Culturally Relevant Education and Skill-based Education for Sustainability: The creation of a new, seven-point framework:



In the following section of this appendix, the author describes each of the seven main objectives of the new framework: Culturally Relevant, Skill-based Education for Sustainability. With each main objective, there is further explanation and a series of practical examples that illustrate how this objective can be targeted in the classroom.

1. Promote cooperative learning and valuing of multiple perspectives

THIS INCLUDES...

- providing opportunities for collaborative learning and endeavoring.
- not only providing multiple perspective but explicitly showing the benefits of multiple perspectives (i.e. showing that when people come together they have more capacity to solve problems). This fosters motivation to work with others.
- helping students identify collaborative and leadership strengths in themselves and others. The ability to identify and utilize everyone's strengths and viewpoints, including their own, helps students enhance the success of collaborative endeavors.
- modeling and fostering communication skills and interpersonal skills.

PRACTICAL EXAMPLES

- One of the simplest ways to meet this objective is to have students work in groups or partnerships. This can take the form of a collaborative group science project, a social studies research group, student groups working together to solve math problems, reading groups, and beyond.
- After collaborative work time, have students reflect on how they were able to contribute to the group. This discussion can connect to Howard Gardner's Multiple Intelligences—the idea that there are multiple forms of intelligence that enrich any endeavor*. Discussions of these various intelligences can lead students to realize that perhaps one student is a great artist, while another student is a great editor, and so on. By having students realize that they all have different strengths and views that can enhance the group's success, students begin to understand the value of bringing together varied strengths and perspectives—in other words, they begin to build a deep understanding of the value of diversity and collaboration. One way to start this process of awareness is to find an age-appropriate 'multiple intelligences inventory.' Many are available to print out for free on the Internet. Somewhat like a magazine quiz, these inventories provide statements such as 'I love to use art to express myself,' and 'I prefer to work by myself.' Students check yes or no for each question, then the students or teachers sum up the inventory and the students can identify which intelligences are particular strengths for them. This helps students understand the concept of different strengths in a tangible way. That understanding can then be used in conversations about how different strengths enrich collaborative work and problem solving. This can later connect to similar discussions revolving around cultural knowledge that students bring to the classroom and how different cultural backgrounds can enrich collaborative endeavors in the same way as 'multiple intelligences' do.

**For more on Howard Gardner's Theory of Multiple Intelligences, see http://www.pbs.org/wnet/gberf/education/ed_mi_overview.html*

-Have student literature circles where students share and reflect on a reading level appropriate text and work on literature related group projects. Students can have rotating roles such as ‘recorder,’ ‘group facilitator,’ etc., in order to scaffold discussion and support the process of group work and collaboration. Model these roles explicitly at first so that students clearly know what each role entails.

-Hold a group discussion about what it means to work well together. After coming together to define the attributes that help us work together (ability to compromise, being a good listener, etc.), have students reflect on their strengths and challenges in regards to those attributes—This can be a great writing prompt or series of writing prompts.

-Model democratic processes in the classroom. For example, work with students to create a class constitution that defines the rules, expectations, and consequences for the class based on the guiding question of, ‘What rules do we need in order to feel safe and successful as a class community?’ Democratic modeling allows students to participate in the process of rule making. This helps them understand why rules are in place, and gives them investment in the whole process of self-governance.

-Use acting, role-playing, or puppets to model ways to resolve conflict, make compromises, and make group decisions. This gives students something to emulate as they learn to work well collaboratively. This kind of role-play can also be used to model what it means to facilitate as a leader. In this way, teachers can show what it is like for a leader to be the one asking the questions and making sure everyone gets a chance to share, rather than being the one making unilateral decisions.

2. Foster systems thinking skills and an understanding of the mutual interdependence of all human and earth systems

THIS INCLUDES....

-providing experiential examples so students can see the interconnected nature of different systems (ecological systems, community systems, systems on various scales, etc.).

-providing students with opportunities to make connections between disciplines and to take their knowledge and skills from one area of study and apply it to different contexts.

-creating opportunities to foster big-picture thinking.

-helping students learn how to identify their role in the context of a given system and understand that their actions have long-lasting and far-reaching repercussions. Foster this both through explicit discussion and through example.

PRACTICAL EXAMPLES

-Create a lesson highlighting different aspects of a system. This can focus on different people and/or resources in a community, the various animals and plants in an ecosystem, and so on. Then students illustrate individual aspects of the community (i.e. for an ecosystem students could make pictures of a rabbit, a fox, a river, plants, etc.). Then put up the illustrations on poster board and use yarn to connect the illustrations to show an intricate web of interdependence between all parts of the system. For example, the river connects to the plants and animals because they all need water, the rabbit connects to the fox because it's the fox's food source, the rabbit connects to the plants because it's the rabbits food source, and so on. This can also be done with students playing the part of the different aspects of the system and throwing a ball of yarn to each other. If every student in the class illustrates or acts out one part of the system, a complex web will form. Then, at some point, ask and illustrate what happens if you take one part of the system away and show students how that can unravel the web. This activity can be adapted in many ways, for many different systems, but the overall goal is to show the interconnected nature of systems in a tangible way, and then show that when one part of a system is effected, it affects many other parts of the system too. The following website describes a way to implement this for upper grades, but this concept can be adapted for students as young as kindergarten or preschool as well.

<http://www.riverventure.org/charleston/resources/pdf/food%20web%20game.pdf>

-A great resource to promote systems thinking skills is [The Systems Thinking Playbook](#), by Linda Booth Sweeney. This provides many further examples of how to instill these habits of mind in an educational setting.

-Connect lessons in one discipline (i.e. a math lesson) and show how those concepts can be applied to a variety of other disciplines. For example, if you are teaching about subtraction, show how subtraction can be applied to a wide array of real life issues such as buying and selling goods, determining how much of something is left over, considering temperature change, etc. This will help students understand the relevancy of what they are doing and be able to get into the habit of applying their knowledge to a variety of different situations.

-There are many books that illustrate a chain reaction of events that can help students understand that we are all connected and that our actions can have far reaching effects. Some read aloud books that touch on this subject are:

The Quarreling Book, by Charlotte Zolotow

Glenna's Seeds, by Nancy Edwards

What Can I Do Today? To make this world a happier place, by Allison Stoutland

After reading a book like this, pose a question based on relevant class studies. For example, if a class is learning about the ocean, one could ask, "What happens if you dump chemicals down the drain?" That prompt can then lead into an exploration (incorporating writing, reading, math, etc., if desired) in which students follow that chain of events (i.e. it pollutes the creek, then the water drains into lakes, which hurts those animals, then it goes into the ocean and small fish take in those chemical, then bigger fish eat them, then fishermen catch those fish, then we eat those poisoned fish, and so on.) As part of this, try to make the connection back to humans if possible. It is important to show that humans are part of the systems that we analyze. A discussion like this can also lead to real life investigations such as research on the mercury levels in fish from local fisheries. This concept can clearly take on many forms depending on what one is studying and what could tie into the curriculum. It leads to great writing prompts, great research topics the kids will care about, great math utilization through data analysis opportunities, so on and so forth. It also can lead to a community action project.

-Educators can craft lessons that focus on the things that we all share as a community. This further strengthens that understanding of interconnectedness. Teachers can brainstorm these things with the class—things such as 'we all share the air we breathe, the water we drink, local libraries, parks, roads, etc.' Then students can do writing projects, art projects, investigations, or research projects based around these things we share. After working to identify these shared things, teachers can create projects to help students investigate how we can take care of these things we all share. This can even be a lead up to a service learning project, community involvement field trips, or other community outreach endeavors. An important aspect of this study is that when we hurt the things we all share (i.e. when we pollute our air or our water) we are not only hurting everyone around you, but we are hurting ourselves—and conversely, when we make positive change we are helping others and ourselves.

3. Connect students' backgrounds to classroom learning and celebrate cultural assets—all while teaching students how to operate in diverse cultural modes

THIS INCLUDES...

- providing opportunities for students to share their cultural and individual background and knowledge so that it enriches the learning taking place in the classroom.
- incorporating various ways of learning and interacting so that each student gets a chance to learn through manners that are culturally familiar. This allows educators to teach through the strengths of all students and broaden students' capacity to navigate different modes of learning and expression. In this way, students can grow to be successful in a wide range of settings.
- connecting curriculum explicitly to the experiences of the individuals in one's classroom, and allowing their experiences to drive the focus of the curriculum when possible.
- providing extensive positive presence of diverse cultures within the curriculum—including positive references, contributions, and viewpoints. This includes going beyond superficial cultural traits such as foods and festivals. Through this, educators create a basis of respect for different beliefs and different approaches to learning and interacting.
- allowing students to explore their own cultural heritages, and to consider what cultural practices they wish to preserve or transform in their own lives.

PRACTICAL EXAMPLES

- Provide a variety of different learning settings. This should include group work, partner work, and individual work.
- Provide a variety of ways in which students can express their learning and be assessed: writing, acting out, songs, raps, poetry, artistic depictions, storytelling, essays, oral presentations, audio and video recordings, etc. In this way, educators give students from all different backgrounds with all different strengths a chance to shine. This also affords everyone the opportunity to explore new ways of expressing themselves and helps students become more flexible in a large variety of cultural modes.
- Create lessons and discussions that consider invisible vs. visible identity traits. For example, work as a class to create a mind map listing visible identity traits (i.e. hair color, skin color) and invisible identity traits (i.e. hobbies, traditions, personality traits, fears) This gets students to understand the complexity of identity. In this way, educators can push students to see beyond the surface to start to develop their own identity and to understand that identity is something that goes far beyond visible traits.

-Have a student of the week and incorporate opportunities to celebrate and share that student's traditions, culture, and experiences. This could include having family members come in to share or do an activity that connects to their background, having students share a favorite tradition or celebration, or even doing a mini-study on something that the student of the week is particularly interested in or is knowledgeable about. The point is to provide various opportunities for the cultural and experiential backgrounds of the students to enrich the learning in the classroom.

-Plan home visits in order to learn about the backgrounds of students and find out what kinds of things might connect to their experience. Then create curriculum and supplement existing curriculum to reflect and celebrate aspects that connect to students' backgrounds.

4. Foster creative, critical thinking skills: the ability to consider issues from multiple perspectives and meet goals critically and creatively

THIS INCLUDES....

- addressing issues, including controversial issues, by providing text and other material with a diversity of viewpoints. This provides opportunities for students to think critically and make their own decisions.
- creating a safe and respectful classroom climate in order to support respectful analysis and dialogue.
- providing examples of ways people have used creativity to develop solutions and to design and work towards goals.
- giving opportunities for students to practice envisioning solutions using their own creativity.
- providing opportunities to synthesize and value information across disciplines and apply it to new situations, goals, and problems.
- fostering the ability to be constantly reflective in one's approach to any goal, method, or solution.
- helping students separate the difference between root causes and symptoms in order to find upstream solutions.

PRACTICAL EXAMPLES

- In regards to mandated curriculum, if one is required to present an issue or event in a way that shows just one possible point of view, add in another text, read aloud, video, or discussion that looks at the same issue/event from another point of view. Provide time for students to reflect in these different views.
- The book The True Story of the Three Little Pigs by Jon Scieszka is a fun book for elementary students that uses a well-known story and changes the viewpoint to provide a different way of thinking about the story line. This develops critical thinking skills and an understanding that multiple perspectives exist.
- Provide students with scenarios of real life problems and then have students work together to figure out solutions. These could be community problems, environmental problems, construction problems—anything that somehow is relevant to the lives and knowledge of the students. Then students can write about their solutions in order to tie in language arts practice. The problems can also be mathematically oriented.
- Provide opportunities for students to apply what they have learned in one discipline (i.e. in math) and apply it to another discipline (i.e. to solve or consider an issue in social studies). See the Farm Unit section (p. 92-95) below for specific examples.

- Silva and Langhout (2011) described a case study where a teacher focused on a weekly artist to teach both academic skills and further critical thinking skills. This teacher had students read about the artist and then incorporated writing, spelling, and social studies assignments around this theme. She chose artists from diverse cultural backgrounds who made positive change in their communities and beyond. This provided opportunities for discussions, reading, and writing topics on themes such as race, ethnicity, power, privilege, discrimination, and other social issues. It also allowed students to develop critical skills that considered the experience of the target artist in the context of how they were able to bring about social or environmental change. Furthermore, the target artists were natural examples of people who used creativity and critical thinking skills to consider issues they were facing and stand up for what they believed in. In this manner, the teacher was able to incorporate social consciousness, critical thinking, and promote active citizenship skills through reading, writing, spelling, and social studies, (Silva & Langhout, 2011).

-Hold class discussions to address ‘class problems.’ For example, the teacher might say that there is a problem because people keep shouting out while others are sharing. Then, instead of simply handing out a consequence or making rules, have a meeting where students share their ideas on how to fix the problem by suggesting what systems could be put into place to address this problem. This develops problem solving skills as well as deepening investment and involvement in the class community.

-One great example of developing creative design skills is as follows: A second grade classroom was studying the history of their hometown as part of a social studies investigation. They incorporated a project where students designed inventions to address problems faced by people during that time period. This required a deep investigation into that historical setting. Then, it allowed students to creatively apply that understanding in order to develop their own inventions to solve a daily problem that people faced during that time. This approach increases interest and engagement in learning because the purpose of the research was to apply their learning to an exciting, student driven project. At the same time, the project fostered the development of creative design skills.

-To help students learn how to apply knowledge to other disciplines, create a daily morning message where students use recently learned math, language arts or other academic knowledge and apply it to a real context. For example, after a lesson on subtraction and during a science sequence where students were growing bean plants, the message might say: *‘My bean plant was 5 inches last week and now it is 8 inches, how much has it grown? Solve this problem now so you will be ready to find the difference with your own plant later today.’* This message introduces a project to come and shows students how they will apply their subtraction knowledge to a different situation.

-Addressing any history unit from elementary to high school with the guiding question of, ‘whose story is told and who’s story is left out,’ can promote critical thinking skills. With this guiding question, teachers can develop discussions and investigations to help students start to critically consider the viewpoint of text and the reality that texts often emphasize some points of views while giving short shrift to others.

-Another way to frame a social studies investigation is by considering how we can learn from history in order to inform our current day decisions. This was the frame applied to a fourth grade unit on California Native Americans. The unit zoomed in on the local group of indigenous people and asked the guiding question of, 'how did they live well in a place over time?' This led to investigations focused on how these indigenous people lived sustainably on the land before the Europeans arrived. Then the unit led students to consider what they could learn from these indigenous people, and how that knowledge could help them learn how to live sustainably in today's world.

-Highlighting the skill of daily 'problem solving' can also promote critical thinking skills. For example, if a student comes up as says, "Ms. E, I don't have a chair at my desk," the teacher can ask, "Well how can you solve that problem?" In this example, the teacher prompts the student to use his or her own problem solving skills rather than relying on the teacher to provide all the answers. While this seems very simple, it can profoundly shift the way that students are able to consider and solve their own problems using their own creativity.

5. Promote inquiry and active, self-directed learning

THIS INCLUDES...

- teaching and modeling the skills and approaches of a self-directed learner.
- providing opportunities to practice self-designed learning and inquiry skills.
- serving as a facilitator rather than the provider of all the answers.
- instilling curiosity and extolling the value of curiosity.

PRACTICAL EXAMPLES

- With very young children, begin by helping students practice the simple skills of noticing and wondering. This can be done through writing or dictation in which students make observations using the phrase 'I notice....' and then asking questions using the phrase 'I wonder...'. This provides the building blocks for students to begin using skills of inquiry.
- When children ask questions about things, make sure to positively commend their curiosity and even if you don't know the answer, ask students how they might go about trying to find the answer.
- With students as early as first grade, have students not only develop questions and observations, but also facilitate a process where students develop investigations to answer their questions. This process helps student become more self-directed in their learning and also develops strong skills of a scientist, researcher, and scholar. One way to start this process is by brainstorming a list of questions. For example if students are studying snails, they might come up with questions like, 'I wonder if they like ice cream,' 'I wonder if they like to be alone or with other snails,' or 'I wonder if they could live on the moon.' Then the teacher facilitates the process of deciding what questions are realistically investigable in a classroom setting (the moon question would of course be out). Then students work in a group to design an investigation, make predictions, carry out the investigation, and reflect on the outcomes. Through all of this, the teacher facilitates and leads students though the process but lets students be the impetus for the whole learning progression.
- An excellent resource for further inspiration and information about inquiry-based instruction can be found on the Institute of Inquiry website at <http://www.exploratorium.edu/IFI/about/index.html>. Their website contains information on inquiry approaches, inquiry-based sample projects, and research-based literature on effectiveness and methodology. They also provide workshops and professional development opportunities.

-Another example in which inquiry-based instruction is implemented in a social studies/language arts unit is a unit in which students learn about the local indigenous people of the area. The investigation does not come from a textbook. Instead, the students generate all the questions in regards to what they want to investigate about the local Native American group. Then students do research (supported for age appropriateness) in order to find the answers to their questions. This fostered investment, curiosity, engagement, and relevancy, as well as promoting scholarly habits and self-directed learning skills.

6. Hold high expectations, create a safe and supportive classroom community, and show care and involvement in students' greater communities

THIS INCLUDES....

- developing student-centered, collaborative, supportive learning environments.
- making genuine connections with each student and the greater community, thus showing respect for the background of every student.
- building bridges between the modes of operation and value systems of the school community and the students' greater communities.
- showing students that they have the power to succeed and to make change.
- providing opportunities for student direction and empowerment in the classroom so they feel invested in the success of their class community.

PRACTICAL EXAMPLES

- A great source of information for creating a safe and respectful classroom is the Responsive Classroom model. There are books and trainings that fully describe this approach. Some aspects that educators can use include building a system in which students help define the class rules and then using non-punitive, logical consequences to uphold expectations. This creates an environment of care and trust. For more information visit <http://www.responsiveclassroom.org/>
- Learn about students and how their backgrounds connect to the curriculum. For example, a teacher might discover that there is a student whose mother works at a plant nursery. Then during a science unit on plants, have that parent come in to share their expertise.
- Home visits in which teachers go to the homes of student—not to teach the families, but rather to learn about and get to know the families—is a great way to connect to the greater communities of one's students. From this exchange, teachers can learn more about ways in which the knowledge of students' families might connect to the curriculum, and they can learn how to design the curriculum to connect to the backgrounds of the students.
- As a 'Responsive Classroom' trained teacher suggested, have students come up with a hope or dream that they have for the school year. For example, a student might hope that they become a better writer or make new friends. Then create a discussion around how we can create rules so that everyone can help each other be successful in creating a safe space to reach those goals. This would then lead to building a classroom constitution where everyone agrees on systems and rules to further that goal of mutual support.

-Teachers can have a classroom economy system where students pay rent to the class yet get paid for their work, such as for turning in homework, doing classroom chores, etc. This can be tied into mathematics and also into behavioral expectations. Students could even vote on the fines for breaking the class constitution. The idea is to model the system in a way that builds money sense and ties into a democratic, classroom community.

-It is important for teachers to attend events that connect to the communities of which their students are a part. This allows them to learn more about the issues that those communities face and understand the richness of those communities.

-Hold class meetings where students get the opportunity to share about their lives. As part of this, incorporate compliment circles where students give compliments to other students in the class. This promotes a closer, more positive classroom relationship. Teachers can also have peer problem solving meetings where a student shares a personal challenge they are facing, and then their peers offer advice. For example, if a student is having trouble dealing with a social situation on the playground, their peers can all provide ideas on how to address the problem. This creates an empathetic and mutually supportive situation where all the students are 'rooting for' that student. It can be amazing how much it cultivates compassion and empathy and strengthens the bond between the students in the classroom.

-The book [Have You Filled a Bucket Today: A Guide to Daily Happiness for Kids](#), by Carol McCloud, emphasizes the concept of daily kindness in a tangible and accessible way for young children. This helps develop language and understanding that serves to promote a safe and positive classroom environment.

-In order to hold high expectations, educators can help students understand what they are working towards and allow them to reflect on that process of academic and/or behavioral evolution. This can be done through reflections on portfolio work, test performance, etc. This gets the students involved with the process of tracking and celebrating their progress, and identifying realistic goals to move forward.

-An important aspect of holding high expectations is providing whatever level of support and differentiation is needed to help students learn and grow in a way in which they feel challenged *and* successful.

-In language arts and social studies, be sure to consider people, especially people from minority groups of which your students are a part of, who have overcome obstacles and persevered in the face of challenges. This helps build motivation to work through difficulties both in the classroom and beyond.

7. Foster the skills and empowerment for active citizenship

THIS INCLUDES....

-providing opportunities for students to take part in all aspects of community action on a variety of scales—including identification of needs, visioning, planning, implementation, and reflection.

-helping students learn how to consider root causes and symptoms in order to envision effective solutions.

-fostering the leadership skills necessary for collaborative action.

-fostering awareness of the surrounding world on a variety of scales, and a desire to learn, act, and reflect in order to build a more sustainable and equitable future for all.

PRACTICAL EXAMPLES

Due to the complexity and importance of this goal of action and empowerment, I wish to extrapolate here on the *practical, methodological* aspects of this goal in a more detailed manner—addressing the question of how educators can promote motivation and skills for action in the classroom. After considering current literature on the topic, I have found that authors have asserted that action goals can be furthered through (A) modeling and practicing these skills in the classroom, (B) using student-centered action projects, and (C) using the closely related ‘Place Based Learning’ model.

A. Modeling and Practicing Skills for Citizenship and Action:

As Lynch (1989) states, skills for active citizenship are learned through doing, and they therefore need to be modeled in the classroom in order to provide students with the opportunities to learn these skills. Veldt & Ponder (2010) stated that the classroom is an ideal microcosm in which to model the functions of society and therefore prepare students for an active role in their own communities and beyond. Nieto (1999) backed up this point by discussing how active citizenship in the classroom can lead to active citizenship in the real world. Therefore, by making the classroom mirror a democratic community where students can explore issues, raise questions, share disagreements, and share varying perspectives, students can grow their capacity to become active citizens (Veldt & Ponder, 2010). In fact, Veldt & Ponder (2010) discussed a recent study that indicated that these classroom practices of modeling active dialogue and democracy have been shown to predict higher levels of civic involvement in high school students. The examples on page 75-76, which address cooperative learning methods can be applied to this goal in order to illustrate how teachers can model democratic citizenship and collaboration in the classroom.

B. Student-Centered Action Projects:

Student-centered action projects are another method for fostering skills for citizenship and action. Lewis, Mansfield, & Baudains (2008) discuss student action projects as being participatory, interdisciplinary projects that allow students to collaboratively consider societal challenges and engage in positive change in their greater communities. They examine a three-part framework for considering this kind of learning experience. This model considers designing projects so that students learn *about* action, *through* action, and *from* action.

-In order to learn *about* action, students learn how to develop ideas and methods for action.

-To learn *through* action students go through the actual process of planning and implementing a project in the community (locally or beyond).

-To learn *from* action students are given the opportunity to reflect upon the project and synthesize what they learned from it and what they could apply to future situations.

They assert that by facilitating this process in a way in which the students can take a directed and participatory role, educators can help cultivate the skills and motivation that students need to become ecologically and politically literate individuals who have the ability to make positive change in their communities and beyond. On top of this framework, they also assert that the goal of these projects should focus on the threefold outcome of developing civic skills, civic knowledge, and civic disposition for action and involvement. (Lewis, Mansfield, & Baudains, 2008)

Veldt and Ponder (2010) explain that action projects must provide time to consider the cultural and social context of the problems being addressed. In this way, the project experience goes beyond simply doing ‘charity’ in order to develop greater understanding of both students’ roles as citizens and of the existence of larger problems and inequities to which they are directing their action. With this well-rounded view, students learn skills with which to analyze problems and create effective solutions, rather than simply having students do good deeds (Veldt & Ponder, 2010).

Another important point is that the goal is to shift the focus from teacher-centered to student-centered learning (Veldt & Ponder, 2010). An important aspect of this is to create a balance where students can direct the path of the project, yet where adults act as facilitators to help students choose realistic goals and navigate around institutional obstacles (Birdsall, 2010).

Furthermore, action projects should work to build partnerships with the greater community (Veldt & Ponder, 2010). For example, the teacher must help students learn how to make connections with those around them, such as making a connection between the project and their families, school administrators, local community and government officials, etc. This can take the form of direct contact as well as written exchange, such as writing letters. (Veldt & Ponder, 2010).

Veldt & Ponder (2010) also suggest the following sequential framework for beginning an action project:

1. First create a forum for discussion to help students consider problems they might want to address based on their own experiences and interests.
2. Then provide opportunities and support for students to conduct extensive research on the topic. This step helps students learn more about the context and background before they choose how to take action.
3. Next, have students discuss and collaborate in order to create a plan for action. During this development, the teacher serves as a facilitator to help the students make the decisions and come up with a plan for action.
4. Then, as the project is taking shape, the class must work to publicize the issue and build awareness in their community in order to create the momentum for action. (Veldt & Ponder, 2010).

In reflection of this model, research by Veldt and Ponder (2010) clearly showed that teachers participating in these action projects observed a number of striking benefits. Participating teachers reported that with this increase in relevancy they saw a striking increase in student motivation across subject areas. For example, they reported increased focus and motivation in writing because they were applying their writing skills to communicate about their project. Teachers reported that students were showing up on Saturdays to volunteer at local events that related to their project and that students begged to work on the project, not realizing that they were actually learning. (Veldt & Ponder, 2010).

C. The Place Based Learning Model:

As Utley, Obiakor, & Bakken, (2011) stated in regards to culturally relevant teaching, it is important to make sure all students understand that education does not occur in a vacuum and that one's educational experience should connect to the greater community and local context. Place Based Learning (PBL) provides a way to further connect students to their local community (Coleman, (2010). Coleman (2010) introduced the concept of PBL by explaining that it is a bundle of approaches that:

...immerse children in their local heritage, culture and landscape. It suggests that practitioners need to look no further than their own school grounds, their own community, their own built and natural environments for purposeful, relevant and engaging resources for learning about language, maths, arts, social studies—the entire curriculum. (p. 16)

Coleman (2010) explained that PBL is designed to tackle important issues of sustainability and community development in the real-life context of where students live. In this way, it connects to the cultural experience of students while preparing them to become active citizens with knowledge of and connection to their own communities (Coleman, 2010). It is an integrated process that does not add another curriculum, but

seeks to embed a local context into all existing curricula (Coleman, 2010). Similar in many ways to action-based projects, PBL uses concerns and ideas generated by students to address local community problems in an active manner (Coleman, 2010). Furthermore, curriculum planning is designed by looking at how curriculum could be made to connect to the local community context (Coleman, 2010).

In the light of all this, the authors make it clear that PBL serves to connect curriculum with a local context and make learning meaningful (Coleman, 2010). Like student action projects, PBL can use the context of the local community to meaningfully tackle local problems while integrating curricular instruction (math, science, language arts, etc) (Coleman, 2010). According to the Coleman's (2010) description, the reader can conclude that the difference between student centered action projects and PBL, as described in this study, is that PBL often strives to design *all* or *many* aspects of curricula, even beyond an action project, so that it connects to the *local* community in order to build relevance and context to all learning; and furthermore, that PBL focuses directly on the *local* community, as opposed to student centered action projects, where the scope of the action is less definitively local in its scope.

The Farm Unit: How a multi-disciplinary unit can address all seven framework goals through an integrated approach

A brief overview of this unit:

This unit was designed collaboratively by many incredibly talented educators and was implemented across three kindergarten classrooms. During this unit, students explored what a farm was through research, experiential investigations, and by constructing simulated farms. This included simulating weather, having students construct miniature sized farm models, and much more. Each class had its own kind of farm(s). For example, one classroom has three dairy farms and another class has three vegetable farms. They actively traded between each other, creating a simulated farming commerce system. Finite skills and greater concepts were extensively woven into this unit. The unit is presented here because many of the learning methods align beautifully with the new framework developed in this study. This is only a sampling of the unit and is meant only as an example of how educators can use a cross curricular unit to build relevancy, motivation, and promote skills for sustainability in a way that incorporates aspects of cultural relevancy. It is not necessarily meant to be applicable to every classroom. Instead, it serves to illustrate the kind of integrated designs that are possible.

Below, all seven main framework goals are listed, with a few examples of how the farm study unit addressed each of those goals:

1.Promote cooperative learning and valuing of multiple perspectives

-Students were divided up into ‘farm families.’ In these ‘families,’ they had to meet to decide things about their farm such as what they wanted to grow, how they wanted to design their farmhouse, and so on. This provided endless opportunities to discuss and support students as they worked through the challenges of working in a group. Themes such as compromising, what it means to be a good leader, how to give everyone a chance to share, how to be a good listener, and so on, were topics that naturally came up. This provided relevant opportunities to discuss these things and help students think about and practice these important skills.

-As a class, students discussed and voted on farm agreements such as how much they would charge the other farm for the hay bundles they grew. The teacher facilitated the discussion with questions such as, “what will happen if you make the price too high?” The teacher allowed the students to work through the ideas and eventually agree upon a price. This promoted cooperative skills, communication skills, and the ability to compromise and share in a group.

2. Foster systems thinking skills and an understanding of the mutual interdependence of all human and earth systems

The farm unit included an intricate farm economy where students exchanged goods and money between farms. This showed the interconnected nature of these farms and helps students understand that nothing exists without depending on other outside systems. This process tied into an extensive amount of mathematics curriculum.

Beyond an economic level, students also had to consider the many things on which their farms depended—including natural systems, human-made systems, and the intersections between the two. By simulating aspects such as rainfall, temperature & weather changes, water saving, soil preparation, economic exchange, etc., it became clear that the farms needed to work with both natural systems and human systems to be successful. Many of these reflections were used as the basis for writing activities and other language arts applications.

Basic systems thinking concepts, such as cause and effect, were also addressed in this unit. For example, the class simulated rainfall and weather. Those simulations effected how much water students could gather in a ‘reservoir’ bucket, which they needed to water their crops. On hot days, when students had to water their seed trays, the water level went down in the ‘reservoir.’ This showed the concept of cause and effect—as lack of rainfall or using too much water led to drought. It also helped students understand the idea of scarcity. This tied into addition and subtraction lessons as students tracked the rise and fall of the water units in the ‘reservoir’ bucket.

3. Connect students’ backgrounds to classroom learning and celebrate cultural assets—all while teaching students how to operate in diverse cultural modes

As an example of how the unit celebrated the culture and experience of the students, there was a student from Central America who shared pictures of her family’s farm in Guatemala. The class was in the process of investigating what things a farm needs to be successful. By learning about student backgrounds, the teacher asked the student to share her photos. This meaningfully contributed to the class investigation because the photos showed things students needs to create on their own farm simulations. These connections show students that their experience is valued.

The investigations in this unit used multiple modalities to address varied cultural learning styles. There were times for group and individual work—leading to extensive time for collaborative learning as well as individual reflection. The collectivist aspect of group work holds an important connection to many minority cultures. This was balanced by celebrating individual accomplishment and identity—therefore exposing students to a variety of modes of operation and learning. Furthermore, different communication styles were celebrated. The class practiced summarizing information in a direct and concise manner—thus celebrating communication styles more typical to normative, white cultural backgrounds. They also used storytelling and poetry to celebrate more artistic, complex, and emotionally based modes of communication—which tends to better reflect the communication styles of many minority groups.

4. Foster creative, critical thinking skills: the ability to consider issues from multiple perspectives and meet goals critically and creatively

The teachers posed problems for the students to solve in which students had to practice critical thinking skills, and upstream, creative problem solving skills. For example, the teachers put yellow food coloring and brown lentils on the river in the farm dioramas, and posed the problem that there was cow poop and urine in the river by the vegetable farm. The students have to trace the problem back to the cows on the dairy farm and then work together to come up with ways to solve the problem.

Another example was the consideration of water resource issues regarding the simulated reservoir and simulated rainfall. One year, when posed with imminent drought, students had to do a daily journal writing to come up with ways to save water. Students came up with many ideas related to household water saving, and a system was set up to give students credit for saving water in their real-life homes and recording it in a journal log. This gave the students the opportunity to critically and creatively envision a solution and put that solution in place. It also connected their solution to real life water-saving practices.

Through every aspect of constructing the farm, students used writing to share how they could solve problems and make decisions. This gave them the power to creatively share their ideas, motivated them to write, and increased engagement.

5. Promote inquiry and active, self-directed learning

Scientific inquiry is one form of inquiry that is deeply embedded in this unit. For example, in order to promote inquiry skills on a kindergarten appropriate level, every investigation started with students sharing what they noticed and what they wondered. This helped them start to become scientifically observant and curious. For example, students planted fava beans in root boxes and then observed the plants as they grew—tracking the whole life cycle of the plant. Every week, students would draw what they saw in their science journal and dictate observations and questions for the teacher to write in their journal. This helped prepare them for 1st grade when they would take that ability to observe and question and use it to develop experiments to answer the questions they created. This experiential process helped students take full ownership of their learning process.

The whole process of building the farm simulation was based on student driven ‘research’. This research involved going on field trips, reading stories about farms, seeing videos, etc. For example, during a field trip to a farm, students were asked to look at the different machines, buildings, and crops in order to learn what they needed to build on their farm diorama. Back in class, the class brainstormed what they remembered from the trip. Then students wrote about and illustrated the items they thought they needed to include on their farm diorama, based on what they learned from the field trip. Once again, this put the students in charge of directing and envisioning their own learning.

6. Hold high expectations, create a safe and supportive classroom community, and show care and involvement in students' greater communities

As exceptional educators, the teachers who were part of this unit incorporated many systems and strategies to support and create a safe classroom community. In one example, the teachers had beads that students earned for showing traits of a good classroom citizen. These beads identified specific traits such as telling the truth, compromising, including others, etc. These beads provided clear goals for students to work towards and made the concept of being a good classmate more concrete and attainable. In another example, teachers used role-playing to help students process social issues. With these strategies and many more, students understood that the classroom was a place to support each other and practice core traits such as kindness and empathy.

7. Foster the skills and empowerment for active citizenship

This unit promoted active citizenship through an extensive modeling of collaboration and democratic decision-making in the classroom. Through simulation of the whole process of creating and running a farm, students worked together to make decisions, identify issues in their farm community, and envision solutions. The student-centered nature of the unit also helped students understand that they *can* have the power to make decisions and solve important problems. This empowerment and practice in active community involvement was designed to pave the way for future community action in the years to come.