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Sustainability as a Cultural Meta-Value for Informing the Ethics of School Leadership: School Gardening and Its Generative Possibilities

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Abstract

This manuscript examines the various vantages in which sustainability can be understood as a progressively developing meta-value in society and schooling in particular. The conceptual argument focuses on how the School Garden Movement might center a multifaceted conceptualization of what sustainability might mean for ethical school leadership and the moral work of the profession (Kensler, 2012; Laird, 2013). A Sustainability Framework is presented which includes five interconnected dimensions: 1) ecological literacy, earth/creation care, and learning from diverse cultures; 2) sustaining social justice pedagogy that advances culturally responsive practices in schools; 3) professional self-care; 4) development of practical, long-term, real-world solutions that resist quick-fix orientations; and 5) generative dispersion of leadership. Insights from current scholarship on school gardening provide a basis for the proposed sustainability framework for leadership in schools. Suggestions for further study and the development of the framework are proposed.
Keywords: Sustainability, Leadership Ethics, School Gardening, Cultural Meta-Value

On Monday, 23 April 2012 the U. S. Secretary of Education named 78 schools in 29 states as the country's first-ever Green Ribbon Schools for their achievement in environmental impact, and specifically their successful incorporation of environmental learning and commitment to protect the environment (Segura, 2012). As both a symbolic gesture and practical exhortation, sustainability as a cultural meta-ethic was reiterated on a national stage. In recent years, through the work of individuals such as Alice Waters (2008), school gardens have once again gained popularity and have found a place on school grounds and in the hearts and minds of students, teachers, and school administrators across the United States (Custer, 2012; Ritz, 2012; Waters, 2008), and we believe the ideals of the school garden concept and the structures by which it operates have great practical potential to formalize and solidify the overarching goals and exhortation of sustainability as a viable dimension of ethical thinking and moral practice in schools.

We are situating our work at the intersection of the philosophy of education, school leadership and administration, and collaborative, community-based educational research in an effort to dynamically explore the increasing

importance of sustainability within the field as informed by a tradition of praxis scholarship (Hodgkinson, 1983; Starratt, 1994). With this orientation we are reminded of Mark Halle's[1] (2013, public lecture, University of Oklahoma) statement,

> It is commonplace for our leaders to say one thing and to do something entirely different. They publicly embrace sustainable development and then give priority to action that undermines sustainability. The reasons lie not simply with the hypocrisy and short sightedness of politicians. There are real and easily identifiable reasons for this. Unless these are addressed it is hard to see how sustainable development will advance. Happily, we now have an ever-clearer picture of what the transition will require.

Sustainability is inherently about the tenacity of committed stewardship and associated affections (Berry, 1990, 2012), encompassing multiple dimensions that might well be explicated through Ken Wilber's (1996) AQAL Integral Framework (an ontological scheme of "all quadrants, all levels") that can include 1) personal psychology, 2) individual behavior, 3) collective culture, and 4) institutional systems; and with this, possibly understood as a progressively developing meta-value within the US and abroad (Gore, 2006). This meta-value can be directly applied to the context of schooling as well (http://www.greenschools.org), educational leadership in particular (Begley, 2009), in addition to the growing interest and viability of the School Garden Movement (Williams & Brown, 2012). This progressive shift in how to do and ultimately lead schooling efforts might center on what we propose as a multifaceted conceptualization of sustainability for the profession within both specific localized community settings as well as a larger conceptual vision as adopted by the Edible School Yard's "edible education" proposition where education workers bring together food, aesthetics, and an ethic of sustainability (Laird, 2013). Therefore, in this article, we propose an integrated, value-laden construct of sustainability as a viable dimension of ethical school leadership and connect this construct to an ongoing collaborative, community-based educational research project exploring the generative possibilities of school gardening for realizing the ethic of sustainability in practice.

Conceptual Argument

Initial research related to garden-based education has shown promising results for student engagement and achievement (see for example Blair, 2009; Gaylie, 2009), but to date, there has been little research that addresses how sustainability as a sociocultural ideal through garden-based education can influence and potentially provide for an integrated, multifaceted ethical dimension of school leadership, including administrative practice. The structures and processes of the garden-based education

concept have great practical potential to formalize and solidify the overall goals and exhortation of sustainability in the moral life of schools. In fact, with an emphasis on the embodied well-being of people and places Greenwood (2013, AERA 2014 Environmental Education SIG Call for Proposals) indicates that

> environmental education itself can be viewed as a field of research that focuses mainly on understanding how we might best teach and learn forms of relationship…, [and] such a focus is clearly needed in an extended era of socio-ecological decline.

Some important work in the area of green schools and their intersection with democratic leadership has been addressed within the field of educational leadership. Kensler (2012) has expanded the conception of sustainability beyond the focus of broader social movements addressing ecological, social, and economic sustainability to emphasize more directly the integration of both democratic and ecological principals in school reinvention. Focusing on ecological democracy and the development of a conceptual framework for its generative possibilities in schools, Kensler (2012, p. 798) quotes Wangari Maathai (2004 Nobel Peace Prize winner): "Recognizing that sustainable development, democracy, and peace are indivisible is an idea whose time has come." Ackley (2010) also discusses the idea of "green school leadership" and reports that those who lead in green school efforts "protect and act as an advocate for the environment…communicat[ing] their own environmental values and [in doing so] reflecting on their own relationship with the environment and …how [the] experience shapes their work…to think creatively and deeper about their practice" (pp. 5-6). Although there are profound notions of what it takes to be democratically (Dionne, 2012) and ecologically (Orr, 1992) literate, and that substantive work in the field of environmental education can inform such a literacy toward sustainability education (see Williams & Brown, 2012), we are concerned with the application of sustainability as a cultural meta-value informing the vision and work of school leadership. By doing so, our conceptualization of sustainability might be sufficiently multifaceted to inform the moral life of schools. And by following the lead of other conceptualizing about sustainability, notably Atkisson and Hatcher (2001) who formulate a "compass index" involving a framework based on the four grand categories or components of interest with "each cluster tagged to a point on the compass: N for Nature, E for Economy, S for Society, and W for the Wellbeing of people" (p. 515), we begin to appreciate the legitimacy of our project.

We propose that an integrated, value-laden meaning of sustainability as a viable dimension of ethical school leadership may include, but is clearly not limited to, the following components of a developing framework. Our

framework is informed by Brown's (2007) "The Four Worlds of Sustainability" quadrant analysis that seeks to explicate and enrich what is meant by sustainability. The framework includes five interconnected dimensions:

1. Recognition of the importance of ecological literacy, earth/creation care, and learning from grassroots cultures (Orr, 1992; Prakash & Esteva, 1998; Bouma-Prediger, 2001; Daly & Townsend, 1993).
2. Social Justice as manifested in the renaming of resource pedagogies to encompass the notion of sustaining – perpetuating and fostering – linguistic, ethnic, cultural, and identity diversity, dexterity, and plurality in a vibrant, democratic society (Paris, 2012; Gutiérrez, 2008)
3. Maintenance of self as leader in the form of self-care: An ethic characterized by critical reflection, intersubjective engagement, and honoring one's inner-person (Gunzenhauser, 2008; Foucault, 1986; Speck, 1999).
4. Addressing school-based problems of practice by developing solutions that are constructive for long-term, real-world challenges and results, and for the preservation of positive school outcomes beyond the immediate moment (Begley, 2009; Sergiovanni, 2009).
5. The development of educational leadership *for its dispersion*. Developing sustainable *in-service* leadership for dispersion requires leadership capacities at the classroom, school, district and system levels in order to successfully "scale up". Sustainability is "the capacity of a system to engage in the complexities of continuous improvement consistent with deep values of human purpose" (Fullan, 2005, p. ix; Fullan, 2003). Sustainable leadership for generative dispersion requires that leadership capacity be built within a school or system that develops the knowledge and skills to support continuous improvement efforts that serve children equitably and prepare them to become productive adults in a prosperous and democratic society (Byrne-Jimenez & Orr, 2012).

We pose the central question and conceptual framework: In what ways can the School Garden Movement center a multifaceted conceptualization of sustainability as a cultural meta-value in schooling? What are the ethical and moral implications for school leadership?
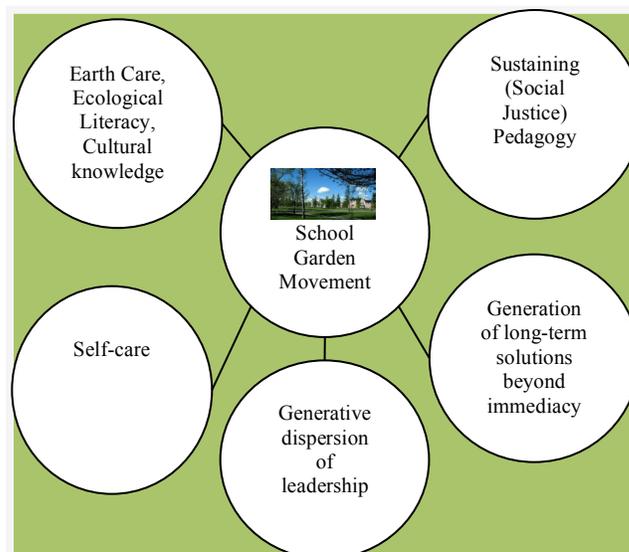

Figure 1
Visual Depiction of Leadership Sustainability Framework

Background

Recent educational policies including No Child Left Behind (NCLB), Race to the Top (RtTT), and the standards-based education and accountability movement (Smith & O'Day, 1990)   spawning such federal policies have promulgated for schools organizational cultures defined by top-down mandates driving much of the instruction and standardized testing that results in student achievement scores. Although an argument can be made that such a focus can have its own merit, we believe that with this recent focus, school stakeholders in many ways have missed out on the excitement and journey of learning and being formed within a vibrant community of practice (Wenger, 1998). Garden-based education on the other hand has the potential to increase student achievement, engage all school stakeholders, and promote inquiry based learning led by the students' interests (Blair, 2009).

A Brief History of School Gardens and Garden-Based Education

Although school gardens and garden-based education is once again gaining momentum and popularity, school gardens are in no way a novel or unusual idea. In fact, gardens have been used as an educational tool around the world for hundreds of years, and in the U.S. the first documented school garden was built in 1891 (Trelstad, 1997). From that point until the second decade of the 20th century, school gardens grew in popularity and were widely recognized by individuals of varying ideologies as a practical and useful tool for instruction, and school gardens found their way into multiple cities large and small across the nation, from New York City to Portland, Oregon (Trelstad, 1997).

The original push for school gardens in the United States came from the Nature-Study Movement, which supported the role of the school garden as a tool for interactive learning. But, during World War I, the U.S. Army and the National War Garden Commission (see *War Gardening*, Victory Edition, 1919) promoted school gardens, or Victory Gardens, as an important resource to support communities and families during a time of rationing for the war effort (Trelstad, 1997). From 1914-1920 school garden projects received considerable and increasing government financial support. However, in 1921 and through the second half of that decade, for a variety of political, economic, and city planning related issues, school gardens and garden-based education began an abrupt and speedy departure from schools (Trelstad, 1997).

It was not until the late 1990s that garden-based education once again saw resurgence, much in part to do with Alice Waters, the acclaimed chef of Chez Panisse, the famous restaurant in San Francisco, California. Waters (2008) details the development and implementation of the Edible Schoolyard Project which began, under her guidance, in a poverty and crime stricken school in Berkeley, California. Since that time, Edible Schoolyards and garden-based education has become ever more widespread and are seen by many as a practical approach for improving students' emotional, social, and academic achievement (Cutter-Mackenzie, 2009; Rye, Selmer, Pennington, Vanhorn, Fox, & Kane, 2012; Thorp & Townsend, 2001; Waters, 2008). For a comprehensive resource on the range of empirical literature supporting students' academic learning see Williams and Brown (2012).

Although the garden-based education movement has been slow to catch on in some regions of the U.S., there is one non-profit organization in Oklahoma, Global Gardens, which provides garden-based education programs for schools in Tulsa and the surrounding metropolitan region. Global Gardens has been in operation since the 2008-2009 school year and offers programs during school hours, after-school programs, and summer programs. According to their website, Global Gardens is an

> organization dedicated to empowering students and communities through hands-on science education. We believe helping students create a garden is a way to not only assist them in learning about science, health and the environment but also challenge them to become caring, forward thinking and confident individuals. Global Gardens is committed to planting seeds of change! (http://www.global-gardens.org/mission.php, "Mission Statement" p. 1)

As has been demonstrated in this brief history of school gardens, garden-based education is gaining momentum and school gardens have been created in schools throughout the nation (see evidence of a network effect such as The Edible Schoolyard Project at http://edibleschoolyard.org/network). A pilot study, conducted by one of the authors in Tulsa area schools, investigated the sustainability framework (Figure 1) in order to provide some evidence of an empirical basis for the construct we propose. The findings of the pilot study are incorporated into a literature review below. Our framework has evolved with the encouragement, feedback, and critique from the scholarly conversations we have had in professional conferences including the Society of Philosophy and History of Education (SOPHE), the Oklahoma Educational Studies Association (OESA), and the Consortium for the Study of Leadership and Ethics in Education (CSLEE). Colleagues have encouraged us to pursue our work and contribute to scholarship focused on the school garden movement and educational leadership.

Literature Review of Dimensions of the Sustainability Framework

The Sustainability Framework includes five interconnected dimensions: ecological literacy, earth/creation care, and learning from grassroots cultures; sustaining social justice pedagogy; self-care; enacting long-term real-world solutions; and generative dispersion of leadership (see Figure 1). Each dimension will be discussed separately and will include theoretical and empirical studies addressing sustainability and, more specifically, garden-based education. Studies are included in the first four dimensions but no studies were found to support the fifth dimension which identifies a gap in the literature.

Ecological Literacy, Earth/Creation Care, and Learning from Grassroots Cultures

Recently, various researchers and school practitioners have emphasized the importance of schools teaching ecological literacy, earth/creation care, and learning from grassroots cultures as one component of understanding the concept of sustainability and its ethical implications for one's own and other's lives to go well (Bouma-Prediger, 2001; Daly & Townsend, 1993). Skinner, Chi, and The Learning-Gardens Educational Assessment Group (LEAG) (2012) conducted a quantitative study for the purposes of identifying critical elements in garden-based education. Participants were 310 sixth and seventh graders enrolled in a Pacific Northwest middle school and six science teachers. Data were collected from pre- and post-surveys during the spring of one school year. Findings reveal that students' intrinsic motivation, and especially their autonomy in the garden, made the strongest unique contributions to both student and teacher reports of garden engagement.

Natural environments provide restorative experiences playing a critical role in human functioning (Kaplan, 1992). Francis and Hester (1990) identify gardens specifically as providing meaning and purpose for those who spend time in them. Thorp (2001) in her qualitative

study of an elementary school garden found inner-city children experience a garden as a "place of exploration, experiential learning, and wonder; [and] the dynamic forces and rich textures of the garden provide a venue to re-connect children to experience which is the ground of scientific inquiry" (p. 116-117).

Empirical literature focused on leadership for sustainability enacted in a school setting illuminates the ways in which effective leaders support and lead sustainability efforts in schools. Ackley (2010) conducted a case study of leaders of green schools for the purpose of adding to the knowledge of what green school leaders do and how these practices are unique from traditional schools. Five leaders were chosen from public and independent schools within the U.S. and data were collected from documents, site observations, and two rounds of interviews. Data suggests six dimensions of green school leadership: roles and responsibilities, leadership styles, values, actions, motivations, and challenges:

Roles and responsibilities: Green school leaders are inspirational, motivational, and a role model for environmental education within the school. They embrace being a student of environmental education, learning alongside teachers, students, and parents. They support teachers being creative as well as providing for collaborative structures that ensure the school community collectively embraces green school initiatives. Principals must also be able to manage the administrative tasks relevant to green school initiatives.

Leadership styles: Principals identify instructional, participative, transformational, and environmental leadership as critical to the success of green school efforts in their schools. Collaborative processes and shared decision-making ensure that everyone's voices are heard in enacting leadership in the school. Principals must also be centered in an "internal desire to advocate for the environment, which motivates leaders to align themselves with the cause" (Ackley, 2010, p. 5).

Values: Principals report students' learning as a top priority as well as communicating a genuine respect for teachers and the work that they do on a daily basis. The importance of caring for and respecting both the family and community connection to the school along with involving students' families and the larger community in the school's environmental advocacy supports the overarching goal of becoming stewards of the environment through community organizing and action.

Actions: First and foremost, creating a culture centered on environmental advocacy is critical to the success of becoming a sustainable school. Modeling and supporting interdisciplinary curriculum building integrating the environment into all aspects of students' learning is also critical. Collaboratively developed professional development opportunities which support

green school initiatives is another critical element of principals' actions supporting green school initiatives.

Motivations: Three key motivating factors associated with becoming involved in green school efforts were identified by principals: 1) making an impact on students, 2) embracing the challenges that green school leadership presents, and 3) being open to new ideas and ways this might influence student and teacher thinking and practice.

Challenges: Principals involved in building a green school report challenges while material construction was in progress and leading a school simultaneously. They also report challenges related to the initial costs of building a green school as well as other components vs. traditional schools. A final challenge was hiring staff that has not had experience in a green school or personal/professional experience in the efforts currently enacted in the school.

Pepper and Wildy (2008) investigated green school leadership utilizing a phenomenological approach. Researchers conducted semi-structured interviews with teachers in three secondary schools in Western Australia to investigate how sustainability is conceptualized, how sustainability is incorporated across the curriculum, how sustainability is lead, and which processes enable sustainability to become embedded in schools. Findings reveal four meta-themes: 1) understanding sustainability, 2) imagining the future, 3) building relationships, and 4) taking action. Understanding sustainability individually and collectively is critical to embedding sustainable practices and processes in a school environment. A future orientation and openness to new ideas and innovation support imagining the future. Building strong interpersonal relationships encourage organizational networking, collaborative decision making, and problem solving to support the capacity for taking action.

Limitations of the study are acknowledged in the lack of identifying the number of teachers interviewed in the three schools, although the data analysis section explicitly describes the manner in which the meta-themes are conceptualized. This study helps illuminate from within a school the critical elements of enacting sustainability in a school environment.

Veronese and Kensler (2013) conducted a qualitative investigation of attitudes, subjective norms, and perceived behavioral controls related to implementing green school practices. Participants included 71 school leaders from the U.S. who completed an open-response online survey. A snowball sampling strategy was used to include school leaders who were recognized for their green school practices and others who may know very little about the topic. Attitudes reflecting advantages and disadvantages of green school practices were identified. The top five advantages were saving money, developing the next generation, conserving resources, modeling sustainability, and improving environmental and health conditions. The top four disadvantages were high financial

costs, investment of time, resistance to change, and lack of information. Those leaders who were leading green schools identified barriers related to doing so. And those leaders who were not leading green schools also reported benefits associated with doing so.

Subjective norms identified in the study suggest that school leaders may perceive social support from community stakeholders to lead and manage green schools. As social pressure for greener, more sustainable schools increases, the need for information, support, and professional development will also need to grow. Perceived behavioral control factors identified in the study suggest that funding, stakeholder and community support, district level support, information and knowledge, and time are the most common enabling factors for leading and managing green schools.

A comprehensive study focused on identifying characteristics of sustainable schools and leadership qualities required to develop sustainable schools was conducted by Birney and Reed (2009). Fifty-six schools in England participated in the Leading Sustainable Schools Action Research Project during 2008-09. Schools selected to participate agreed to become a community of practice and were identified in January 2008. Two regional events were held that supported networking and sharing of progress and challenges. An action research reporting tool was developed collaboratively between the participating schools and research team. In January 2009 participating schools received a £5,000 grant and were required to submit a completed action research report to the Research Project Team in March 2009. The purpose of the tool was to document first hand evidence and reflections on the impact and experience of leadership for sustainability in a community of practice.

Findings reveal seven characteristics of sustainable schools: 1) attention to their contribution to the broader social and ecological footprint; 2) view their ethos and purpose within a broader global context by developing understanding among stakeholders, including students; 3) create positive benefits for pupils including student engagement, participation, and leadership; 4) allow the development, integration, and connection with other educational policies and initiatives; 5) direction and focus that brings about school improvement by raising student achievement and attainment; 6) a focus specifically on improving the learning of children; and 7) engage in curriculum change and development as sustainability is embedded across the whole curriculum. Findings also identify three processes that help schools become sustainable: 1) start where people are and celebrate what schools are already doing; 2) democratic and inclusive leadership; and 3) building leadership capacities in adults and children. Findings also reveal three essential leadership qualities that bring about sustainable schools:

> holding sustainability values and visions in a way
> that [supports] an imperative to act from a larger

sense of purpose (outward-looking), concern and care for the well-being and potential of others as leaders, [and] creating practice-based learning and change for sustainability. (Birney & Reed, 2009, p. 12)

The 56 schools that participated in the study operated as a community of practice during the year in which the research study was conducted. Wenger (1998) is a leading scholar in this area and identifies communities of practice as groups that focus on refining practice and build capacities that support mutual engagement and sense-making. Learning is also a lived experience of negotiated meaning between and among community members.

This literature that identifies characteristics of sustainable schools and leadership qualities required to develop sustainable schools highlights the importance of the first dimension of the framework: Ecological Literacy, Earth/Creation Care, and Learning from Grassroots Cultures. The natural environment of school gardens provides restorative experiences of engagement and autonomy for both children and adults. Human restoration through exploration, experiential learning, and wonder are foundational to green literacy practices and leads to improving environmental and health conditions by caring for the earth and each other. By appreciating the interconnectedness between humans and the earth, we discover the communitarian values of grassroots cultures and what they can teach us. As such, involving families and the larger community in environmental advocacy supports the goal of becoming stewards of the environment through community organizing and action.

Sustaining Social Justice Pedagogy

The role of the school administrator in perpetuating and fostering linguistic, ethnic, cultural, and plurality in a vibrant, democratic society (Fullan, 2003, Paris, 2012; Gutiérrez, 2008) was also emboldened in the school garden programs. Allen's (2008) conceptual support of social justice issues surrounding food security supports foundational underpinnings of pedagogies enacted in school gardens. She identifies "justice involv[ing] basic human needs…access to opportunity and participation…freedom from want…and access to equal opportunity" (p. 157-158). Fien (2001) identifies a three-pronged approach of sustainability education: 1) focus on the long-term future of the environment, 2) the economy, and 3) the formation of social justice of communities.

Ferris, Norman, and Sempik (2001) identify school gardens as one of seven types of community gardens that "promote environmental justice by reconciling people, land and sustainability" (p. 561). Several school garden programs are highlighted but one in particular, Verde Elementary School, illuminates the multidimensional aspects of positively influencing social justice issues. This school is located in a very impoverished community in North Richmond, California and 100 percent of the students are non-white. A garden

was created and maintained by Mien hill people who are Laotian refugees from the mid-1970s. The women garden as if they are in their home country and bring children with them when they work in the garden. The garden provides a venue for a wide variety of educational activities that reach out into the larger community as well as a very successful vegetable production operation.

The Edible Schoolyard Project supports students' learning by providing "the ability to work as a team to complete a job well, demonstrate respect for oneself and others, signal an appreciation for diversity, and understand more deeply how the ritual of eating together at the table connects families and communities" (www.edibleschoolyard.org, "Our Work", p. 1). School gardens developed and stewarded on a school site within a larger community have the potential to provide empowerment, self-sufficiency, access, and participation for children and adults who actively engage with them, possessing the potential to positively affect social justice issues for everyone involved.

Building relationships, identified in Pepper and Wildy's (2008) research, positively supports social justice efforts in schools and communities. Leaders who successfully engage people in sustainability efforts utilize participative and collaborative decision making processes and strong networking and delegation skills. They also share responsibilities with everyone involved and build partnerships between local community and government agencies and NGOs. Ackley (2010) posits the importance of caring for and respecting both the family and community connection to the school, incorporating students' families' experiences, and involving them in the school supports advocacy for green school practices and initiatives. A top priority for leaders is keeping students at the center of green school efforts: ". . .we want the kids to feel like they can make a difference, whether it is the environment, social justice or democratic sorts of things" (p. 6). Shriberg and MacDonald (2013) investigated sustainability leadership programs in 50 college and university programs to determine program designs, philosophical underpinnings, and skills required of leaders. Programs currently focus on network-building, systems thinking and project-based learning. Program directors report social justice plays a strong role in the programs' definition of sustainability, identifying a "triple bottom line of economic, social, and environmental sustainability" (p. 8). Highlighted in Shriberg and MacDonald (2013) is the University of Michigan and its programs that are employing best practices of sustainability leadership not only in the U. S. but worldwide. They identify the following specific skills required of sustainability leaders: visioning, strong communication, systems thinking, and self-assessment.

Thorp's (2001) qualitative study of a garden in an elementary school with a very racially diverse student population (i.e., African American, Hispanic, Asian,

Arabic, and Native American), with 58% of the 260 students on free and reduced lunch, identifies an intentionality of focus on social justice issues during the course of her research project. Students' interactions are particularly illustrative: a group of students were making salsa from harvested garden vegetables and, while talking with each other, several students were curious about the Hispanic culture: "Do they eat [salsa] every day" (p. 92)? Another day in the garden, the researcher was joined by Hmong girls who quickly picked up garden tools and began working the garden without any instructions. They "chatter in their native tongue while they work the soil" (p. 93). She suggests, and we believe quite accurately, that "working the soil is an international language that crosses all boundaries of race, ethnicity, and class" (p. 111).

Thorp (2001) identifies the garden as "a place for connection: connection to each other, to food, to place, and surprisingly to me. I witnessed the common unity – community – that happens when people work side by side toward a shared vision" (p. 93). She also states that "gardens have the power to replace personal ambition with collective goodness" (p. 96). Coming to know the significance of the gardening experience for the students in the school, she suggests "perhaps this is their first step towards constructing a cosmology of interdependence rather than dominance" (p. 97).

Leadership in the garden was demonstrated by the intersectional co-consensual direction and influence of the principal, teachers, students, parents, support staff, and researcher. The principal reported that her vision for the school was to add to what had already been created in the garden by establishing green spaces that would surround the school: "I want children to be hit with the beauty before they enter[ed] the school…I love our school to be a place where you are surrounded by beauty" (Thorp, 2001, p. 102). Findings reveal the communal nature of the garden with students working side by side developing a sense of shared responsibility for what happens in the garden space. The garden is a source of stability and continuity in the lives of children that otherwise have very little they can depend on. This sense of stability is, in part, mediated by a patient elder [researcher]. Teachers clearly state the success of the garden depends on the ability to have this patient elder present in the garden on a regular basis.

Self-care

Self-care characterized by the promotion of critical reflection, intersubjective engagement, and honoring one's inner-person (Gunzenhauser, 2008; Foucault, 1986; Speck, 1999) are often cultural dimensions of schools in which school gardens exist. Much of the scholarship in this area surrounds school cultures and ways in which these cultures support building capacities of students and adults. Schools that are involved in individual and collective reflective practice and inquiry build capacity for improved teaching and student learning (Copland,

2003; Reitzug, West, & Angel, 2008; Katzenmeyer & Moller, 2009). Constructivist perspectives structure learning opportunities school-wide, a critical foundation to building individual and collective capacity with students and teachers (Klimek, Ritzenhein, & Sullivan, 2008; Lambert, Walker, Zimmerman, Cooper, Lambert, Gardner, & Slack, 1995).

Several empirical studies illuminate ways in which sustainability practices, including school gardens, support and encourage dimensions of self-care. Pepper and Wildy (2008) found that leaders must first understand sustainability, embrace a future[s] orientation, and build collaborative relationships with others before taking action. Successful action involves strategic planning, overcoming challenges, and individual and collective reflection of proposed initiatives. Reflective practices are also a part of the sustainable leadership framework offered by Hargreaves and Fink (2004).

Thorp's (2001) findings suggest that school gardens can provide a context that positively impacts elements of self-care for the adults and children who engage in them. The principal is described as an "outstanding leader [and] cares deeply about her teachers and knows the value of reflective practice – a practice driven…by sound learning theory-in-action, tacit knowledge, and concern for the individual child" (p. 72). Throughout the study, she observed multiple occasions where teachers, students and the principal collaboratively built and engaged in problem solving and decision making as the program evolved. She also came to know that the school changed in very meaningful ways as a result of the garden. "The garden created a space…for us to feel graced…the teachers, staff and children were able to view the world through a different window because of the garden. They were able to feel blessed" (p. 80). She also describes that, "We were all nourished mind, body and spirit" (p. 85). Thorp (2001) observed the transformation of one teacher who at the beginning of the research project was burned out and disengaged from her practice. Very soon after the garden was opened, she began to take a leadership role in all aspects of the project. She was observed to "[have] a renewed interest in her practice because of the potential for self-expression she f[ound] in the garden" (p. 84).

An essential aim of Birney and Reed's (2009) action research project was to report on "a reflective process about leadership" (p. 20) as it pertains to sustainable schools. During the course of the year-long project, fifty six schools that were currently leading the way in developing and promoting sustainability in their school and wider community were invited to share and disseminate their expertise by leading a community of practice and to reflect on the leadership, action and outcomes of their work. School teams documented progress in goal areas and, at the end of the year, each school documented the following changes: 1) enabling leadership qualities and processes, 2) influence and tangible effects of the community of practice and leadership within it, and 3) plans and recommendations for moving forward. Findings revealed that

> …leadership of the process of becoming a sustainable school is relational, empowering and connecting. It plays out at the interface between personal authority and democratic, distributive processes. The root metaphor is of a group of gardeners who are involved in planting, cultivating, growing, nourishing and nurturing. Leadership for sustainability is generative, locally relevant, and contextual (p. 44).

An explicit expression of care as a predominant ethic of a sustainable school is characterized by a multipronged principle: "care for oneself, care for each other, and care for the environment" (Department for Children, Schools and Families, UK as cited in Birney & Reed, 2009, p. 3). Relational, empowering and connecting *care stewardship* promotes self-care and lays the foundation for democratic, distributive processes of engagement and leadership.

Constructive Solutions for the Long-Term

A primary goal of the school administrator relates to constructive solutions to problems of practice by promoting outcomes that are constructive for long-term real-world influence and positive effect (Begley, 2009; Sergiovanni, 2009). The school garden offers numerous opportunities to solve real-world problems of practice in unique and engaging ways. Learning communities that embrace school gardens come to understand the possibilities and opportunities for growth for both adults and children.

Focusing on problems of practice for long-term real-world solutions to pressing challenges requires that schools operate as learning organizations. Senge (1990) defines learning organizations as "organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together" (p. 3). They "continually expand capacity to create the future" (p. 14). Communities of practice (Wenger, 1998) are an example of a school operating as a learning organization. Effective leaders of communities of practice lead and support school communities in their collective efforts to maximize learning for all students and adults.

Contemporary school leaders must focus on relationships and interdependencies within an organization and understand organizations as systems (Klimek et al., 2008). Generative leaders, those who actively shape the future of their organizations, recognize and tap the collective intelligence and energy within an organization to generate productive growth and effective solutions. Emphasis is placed on continuous experimentation, systems thinking, and a willingness to creatively explore

the limits of an issue and to think creatively outside its limits.

School gardens build on models of "hands-on, problem based environmental and science education" (Ozer, 2007, p. 847). Constructivist practices, inquiry, and authentic pedagogies are philosophical underpinnings of these models. Thorp (2001) reports students experience delight, enthusiasm, and active participation in gardening activities. Additionally, Bidwell (2014) reports a three-year external evaluation of the REAL School Gardens Program and found 94 percent of teachers responded that their students were more engaged as a result of the garden program. Ninety percent of teachers indicated that the program made them better prepared to help their students. These studies hint at the very real possibilities of schools engaging in proactive solution seeking activity that address long-term challenges and needs through preparation and active participation rather than the typical institutional pattern of reactivity to immediate crises that are often bereft of thoughtful inquiry.

As school communities identify areas in need of improvement focused on increasing students' success, school gardens have the potential to positively change the school culture in meaningful and significant ways. School communities led by leaders at all organizational levels who embrace the learning opportunities that gardens provide for teachers and students support a fertile environment for community learning. Success for all is optimized when students, adults, and families are engaged in working in the garden and reaping the harvest. As such this cultural work is long-term and not focused on emergency solution paths and quick fixes.

Generative Dispersion of Leadership

Sustainable leadership for generative dispersion means that school leadership is intentionally developed within school staff over time so as to be ultimately spread over and into other settings and locations (Fullan, 2003). Generative dispersion requires that leadership capacity be built within a school or system that develops the knowledge and skills to support continuous improvement efforts through expansive distributed leadership that serve children equitably and prepare them to become productive adults (Byrne-Jimenez & Orr, 2012; Spillane, Halverson, & Diamond, 2001). Building leadership capacity with all teachers in a school requires that school leaders "[have] capacity to build capacity" (Fullan, 2003, p. 7). Spillane, Diamond, and Jita (2003) posit leadership must be "stretched over" (p. 535) everyone in a school. System transformation is at the heart of what Fullan (2003) identifies as the moral imperative of school leadership and requires that all professionals at schools sites and in entire districts "build capacity and share commitment across schools" (p. 47) accepting responsibility to contribute to school improvement efforts in multiple locations. Generative dispersion could ultimately be a leadership development partnership between IHEs (Institution of Higher Education) and LEAs (Local Education Agency) – filling the leadership void by partnering and supporting the continuous expansion of leadership for all school workers.

Based on our review of the literature, there are no studies focused specifically on leadership dispersion in schools with gardens as a central feature: the specific development of leadership through school gardening practices that is transferable and/or transportable to other school sites or systems. How would this in-service development of leadership form and what would it look like in practice? Some of the empirical research reviewed earlier in this article hints at what might constitute generative dispersion. Schools with gardens and a focus on the meta-value of sustainability appear to ensure collaborative processes and shared decision making so as to ensure everyone's voice is heard in enacting leadership in the school. As such, a collective commitment to environmental advocacy supports a unified goal of becoming stewards through community organizing and action. This leadership activity, essentially co-constructed by the school community itself, cannot be accomplished without intentionally building strong interpersonal relationships that encourage networking and joint problem solving as capacity tools for action. Ultimately, the empirical literature points to a concern for the potential of others as leaders through practice-based learning (Ackley, 2010; Birney & Reed, 2009; Pepper & Wildy, 2008). We believe that school gardening and its formation of sustainability mindsets within communities of practice could form and promote like-minded leadership that is eventually dispersed to other school sites resulting in exponential effect and influence. A lack of empirical evidence supporting such an hypothesis leads us and hopefully others to investigate this dimension of the sustainability framework for leadership in schools. A knowledge gap has been identified and a working framework has been proposed as a contribution to school-based gardening practices and explication of sustainability as a cultural meta-value for school leadership.

Conclusion

School gardening and its generative consequences has great practical potential to formalize and solidify the overall goals of sustainability as a dimension of ethical thinking and moral practice in schools. From our pilot study and careful review of the literature, we continue to be interested in ways the school garden supports an understanding of the multidimensionality of sustainability and hope to continue to shed light on how garden-based education can center a multifaceted conception of sustainability as a cultural meta-value and its implications for moral school leadership.

The processes evident in the garden-based education concept in many ways inform the multi-dimensional construct of sustainability that we have proposed. Our early work detects that garden-based

education programming can engender: 1) the recognition of the importance of ecological literacy, earth/creation care, and learning from diverse and grassroots cultures, 2) perpetuates and fosters linguistic, ethnic, cultural, and identity diversity, and plurality, 3) supports honoring one's inner-person through self-care, and 4) addresses multiple school-based problems of practice in forward thinking proactive ways. We have seen that garden-based education has great potential to center sustainability as one of a constellation of moral commitments in educational administrative leadership. We propose that our conceptual work articulated here and supported by a range of empirical studies might further advance a variety of inquiries into how school gardening practices and its associated leadership can be generatively dispersed in order to scale up the work of high-functioning local sustainability activities. In so doing we hope to highlight the ways in which school gardens can support school administrators' efforts to address the meta-value of sustainability in our contemporary and contested values-infused world.

Notes

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