

DO NOT UPLOAD YET—COMMENTS AT WORK TO ADD TO THIS.

Sustainability Education: The Community College Perspective

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Abstract: For the past seven years, I have been creating and facilitating professional development workshops focusing on Earth literacy and sustainability for faculty at Miami Dade College (MDC), Florida, the largest community college in the United States. With the support of the college's Earth Ethics Institute, I organize a lunch and learn series called Wisdom Luncheons, oversee an organic campus garden project, facilitate workshops on sustainability education, and teach graduate classes focusing on sustainability, globalization, education, and Earth literacy for our faculty. 175,000 students currently attend MDC, so the potential to transform the community through education is enormous. It is no surprise then that ideas about sustainability education swirl through my head during most waking hours, and occasionally, they occupy my dreams as well.

Key words: Sustainability Education, State of the Field, Community College, Earth Ethics Institute, Miami Dade College

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The Big Ideas

When people ask me what I do, I usually respond that my bread and butter involves teaching English to international students, but that my passion lies in sustainability education. When their eyes glaze over, which is still mostly the case in South Florida, I quickly add something about teaching students how to live in balance with nature or understanding the limits of our planet's carrying capacity, and if they still have a puzzled look, I say: "You know, going green, being environmentally friendly..." - at which point most nod their head to indicate they get what I mean. Of course, this often leaves me frustrated because I ought to know better. Sustainability education should never be reduced to just that, but how can one explain the complexities of the field in a sentence? Would a recitation of the Brundtland Commission's definition be more helpful? "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs," I could tell them, but we know that there are hundreds of other definitions out there and, truthfully, this quote says nothing about education.

So what are the big ideas driving sustainability education? What enduring understanding would I like students to gain? Interconnection, or systems thinking, tops the list of essential concepts. David Suzuki captures this well when he states, "There is no environment 'out there' that is separate from us. We can't manage our impact on the environment if we *are* our surroundings" (2007, p. 17). This idea of everything being related presents a powerful lens through which we can examine topics across the curriculum: the global economy, climate change, human trafficking, ecosystems, nutrition, agriculture, and information technology to name only a few. From the macro-level of broad ocean currents influencing weather patterns that span continents to the microscopic interaction of genomes biologist study, examples of this principle abound. One memorable example from Suzuki's book *The Sacred Balance* centers on the air we breathe; "it embraces us so intimately that we cannot say where we leave off and the air begins" (p. 54). Students are fascinated by the idea that they may inhale, as Suzuki suggests, the same particles that filled the lungs of historical figures. If students can see the connections that tie everything together, if they can grasp the ripple effect of our actions, only then can we start focusing on transforming our unsustainable lifestyles.

Aside from systems thinking, or the ability to understand interconnectivity, the learning outcomes of sustainability education include a reflection on the values driving these systems and ultimately our own actions. According to Morris and Martin (2009), studying sustainability implies that we have to analyze how systems work and which parts we want to keep. It means that we must be prepared to compromise and deal with the consequences of our decisions (p. 160). To be able to accomplish this, we need to examine our values and the values of others.

Finally, I would hope that students develop a sense of responsibility and agency. At some point, they have to feel uncomfortable in their chairs and be ready to spring into action. Sustainability education cannot be only theoretical; it must be applied. I would argue that it cannot be achieved through reading and studying alone; students have to experience sustainability. How students can gain these enduring understandings will be discussed later on, but first let us look at what subject matter sustainability education entails.

Content Knowledge

Philosophers may be able to dwell on big ideas for a living, but most instructors have to adhere to course competencies that outline what students are expected to know at the end of the term, even those teaching philosophy. So what does it mean to be knowledgeable about sustainability? Does a body of knowledge exist as it does for other, more established disciplines such as biology, economics, or history? And if it does, how can this content knowledge be taught? The index of an introduction to sustainability textbook might be a good place to start examining what content experts consider essential. Last year, I piloted an excellent publication called *Fundamentals of Sustainable Development* by Dutch author Niko Roorda, which my graduate students, some with substantial experience in the topic and others newcomers to the field, thoroughly praised for its breadth as well as its depth.

Supported by a myriad of case studies, photographs, and charts, Roorda's book covers the concepts of intra- and intergenerational equity; the developments leading up to the Brundtland Commission's definition of sustainable development; the triple bottom line (people, planet, and profit); linear versus systems thinking, including positive and negative feedback loops and their influences on stocks and flows; population growth and its impact on ecosystems; the relationship between economic imbalance, ecosystem destruction and poverty, violence, and warfare; the impact of climate change, including adaptation and mitigation efforts; the precautionary principle; recent geopolitical developments such as the ascent of China as an economic powerhouse; computer models projecting future growth scenarios; energy resources, including peak oil and renewable energy sources, global economic production lines and chain management; and corporate social responsibility and ethical standards.

In an introductory course, professors can familiarize students with these topics so that they get a broad understanding of sustainability; in fact, when I have taught courses at my community college, my goal has been to give students this kind of stimulating overview. However, this tremendous range of issues is probably the reason why sustainability education can be hard to contain. On the other hand, the sheer scope of topics also means that anyone, students and professors alike, can find an entry point. For the speech professor in the graduate class it was Maslow's hierarchy of needs in the

chapter on sustainable business practices, while the nutritionist created a unit connecting global food policies to poverty, hunger, and malnourishment. As the facilitator, all I have to do is help my colleagues discover the connection to their field, and with my community college students, we explore how these issues relate to their personal lives and future careers.

Skills Sets and Attitudes

In order to contribute to sustainable development, faculty and students need to develop certain skills and cultivate what Luna and Stibbe call “dispositions” (2009, p. 12). The former may be easier to impart than the latter, but these personal attitudes or inclinations are what will ultimately move sustainability forward. Sustainability education should try to instill the following skills: being able to adapt, cooperate, solve problems, think systemically, connect with others, network, apply the precautionary principle, understand the impact humans have on the environment, consider ethical implication, minimize waste, evaluate current and future effects of decisions, communicate across cultural boundaries, and exhibit fortitude.

At Miami Dade College, we included the eight characteristics of a 21st century citizen, which a group of experts from nine countries created as guiding principles (Sterling, 2001, p. 75). These include:

1. looking at problems in a global context
2. working co-operatively and responsibly
3. accepting cultural differences
4. thinking in a critical and systemic way
5. solving conflicts non-violently
6. changing lifestyles to protect the environment
7. defending human rights
8. participating in politics

Since the big idea of sustainability education is interconnection, these eight characteristics are also interdependent. To illustrate, students need to learn to approach problems from a global, systemic perspective, but they also need to look at how their own lifestyles might promote or inhibit solutions. To these eight, I would add the skill of finding wisdom in the local community and applying it to solve local and global problems. In the *Transition Town Primer*, this is referred to as “Honor the Elders. Learn from the past and develop connections” (as cited in Sustainable World Coalition, 2010, p. 52). Especially in the United States, we tend to value youth and innovation above the wisdom of the elders. In other cultures, such community wisdom is held in much higher esteem, and it might be time for us to reevaluate our tendency to dismiss traditional knowledge.

As far as dispositions are concerned, one of the most important that educators can instill in their students pertains to developing a positive outlook and a ‘can-do’ attitude toward challenging situations. A learning outcome of sustainability education should be that students recognize that their actions have an impact and that their decisions matter. In addition, they need to learn how one frames issues to prevent falling into despair and what the best methods are to deal with complexity. The question arises whether this glass-half-full view can be taught through role modeling and practice. I believe it can, but it takes awareness and perseverance to cultivate. In her book *Mindfully Green*, Kaza reminds us that “Agency is everything in a world with so many challenges,” and that everyone is “a participating agent” (2008, p. 46).

Faculty Professional Development

Before we can further discuss what sustainability education entails for students, we have to address the people charged with educating them: the faculty. These days, an increasing number of colleges and universities offer minors and majors in sustainability at the bachelor, master’s and doctoral level, which makes me hopeful about the next generation of architects, business managers, lawyers, nurses, and teachers. Yet, the majority of professionals in today’s workplace, including most professors, do not even have one 3-credit course in a sustainability-related field on their transcripts. When I was pursuing my doctoral degree in higher education and working on my dissertation on community college professors’ attitudes, beliefs, and practices regarding sustainable development a few years ago, only one professor on my committee really understood what I was researching. My point is that we must find ways to bring sustainability education to the educators first.

According to Edwards (2009, p. 126), an increasing number of college faculty want to incorporate sustainability into their curriculum, and this trend is fueling a demand for sustainability education workshops and related professional development. At Miami Dade College, the Earth Ethics Institute, led by Colleen Ahern-Hettich, has been training faculty in Earth literacy and sustainability for many years. When we became serious about offering students an opportunity to earn a recognition in Global Sustainability and Earth Literacy Studies (GSELS) after completing a given number of sustainability-related and focused courses modeled after the Association for the Advancement of Sustainability in Higher Education’s (AASHE) Sustainability Tracking, Assessment & Rating System (STARS), we knew we had to devise a program to train and certify faculty. We also had to create sustainability learning outcomes and criteria for our students.

Faculty members can qualify as GSELS-certified instructors by participating in 36 hours of College Training and Development workshops focused on sustainability-related topics and creating lesson plans or units for their courses. Past programs have included topics such as Biodiversity and Language Diversity, Mangrove Ecology, Biophilic

Design: The Architecture of Life, and Sustainable Education Pedagogy. Completing one of the graduate courses on Earth Literacy or Sustainability Leadership/Sustainable Education Studies we have specifically developed for this purpose presents another path. While some faculty members have been incorporating sustainability and Earth literacy in their courses for years, many of the professors who enrolled in the graduate classes had no previous experience with sustainability education. When the director of the Earth Ethics Institute and I sat down to design the courses, we were essentially asking similar questions as the ones posed for this journal edition: What is sustainability education, what literature informs us that we want to share, and how can we support our faculty?

When I was first introduced to sustainability education in 2002 in a doctoral-level educational leadership class, my professor assigned Stephen Sterling's seminal work *Sustainable Education: Re-visioning Learning and Change* (2001). This book had a big impact on me, so I always include it on my recommended reading list because it serves as the foundation for teaching sustainability pedagogy and distinguishing between the paradigm that is currently in place, the mechanistic view, and the one we need to embrace, the ecological view. This analysis is vital because instructors have to recognize that teaching and learning are embedded in a system, that a hidden curriculum exists, and that a paradigm shift toward sustainability education entails more than added content about "green design," sustainable agriculture, renewable resources, or endangered species protection; we must develop a new dynamic pedagogy that "allows us to work with ambiguity and uncertainty" and provide an atmosphere "to allow creativity, imagination, and cooperative learning to flourish" (p. 61). In short, everyone in the classroom, not only the professor, contributes to the construction of knowledge. Sterling's slim book is the little engine that could, and it never ceases to inspire me.

Another thought-provoking text is *The Handbook of Sustainability Literacy: Skills for a changing world*, which, as its title indicates, highlights some of the skills sustainability educated citizens should possess. The most vital pertain to practical skills such as Permaculture Design, Community Gardening, and Transition Skills for the post-fossil-fuel age as well as soft skills like Cultural Literacy, Social Conscience, and Futures Thinking, which is "the ability to envision scenarios of a more desirable future" and Systems Thinking (Stibbe, 2009, Contents). Intended mainly for faculty, this handbook contains activities and tips on how to engage learners and instill the skills they will need to bring about a sustainable future.

David Suzuki's book *The Sacred Balance: Rediscovering our Place in Nature* affirms human's deep connection with nature on both physical and spiritual levels, and this approach allows both the scientifically inclined and the more humanities oriented to learn about the origins of life, the influence of the elements on ecosystems and humans, and the forces that drive our actions. A model of interconnection, the book brims with scientific facts and figures. At the same time its elegant prose appeals to those who prefer

stories and anecdotes. Because of this unique blend, I would always include *The Sacred Balance* in a sustainability curriculum, whether as a main textbook or supplement.

Finally, for concrete examples on how sustainability can be addressed across the curriculum, I draw on *Sustainability Education: Perspectives and Practice Across Higher Education*, a compilation of case studies, chapters on sustainability theory, and international viewpoints (2010, Jones, Selby, & Sterling). As evidenced by the countless neon-colored sticky notes gracing my personal copy, the authors' contributions deserve to be reread and shared. Whenever faculty members voice doubts about the relevance of sustainability to their discipline, I know where to find an example demonstrating how it can be done.

Curriculum, Instruction and Assessment Practices

As mentioned earlier, the key concept in sustainability education is interconnection, and in order for students to experience this in their classes, instructors have to show how their course content connects to everything else that is being taught. This might sound difficult, but essentially a professor of history should have no trouble relating his/her content to chemistry, music, or anatomy. For example, one of my colleagues from the Health and Wellness Department recently created an assignment in which students had to compose jingles and slogans promoting healthy eating. Studies conducted by the University of Plymouth on how relevant faculty perceive sustainability for their disciplines indicate that the determining factor is not the field of study but the professors' personal commitment to sustainability (Cotton & Winter, 2010, p. 43). At Miami Dade College, we hold professional development workshops that help instructors view the world more holistically and less through the limited lens of their discipline. We also offer outdoor immersions where faculty can learn about the local flora and fauna and gain an appreciation for the multiple services that our ecosystem provides. Sustainability education for faculty has to clarify that fields overlap, expose any artificial boundaries humans have drawn, and support the professors' nascent connection to sustainability.

Once faculty have decided to incorporate sustainability, they must consider an appropriate pedagogy to present sustainability content, build skills, and promote attitudes that not only increase knowledge but also ultimately lead to behavior change. UNESCO's key characteristics of Education for Sustainable Development have served as my guidelines with respect to content and instructional methods (UNESCO, n.d.). In particular, I attempt to:

- Apply pedagogical techniques that promote participatory learning and higher-order thinking skills
- Promote life-long learning
- Select content that is locally relevant and culturally appropriate

- Consider the evolving nature of the concept of sustainability
- Build civil capacity for community-based decision-making, social tolerance, environmental stewardship, an adaptable workforce, and a good quality of life

I also recognize that I can learn as much from my students as they can learn from me. It is vital that we help students recognize the value they bring to discussions on building resilient, sustainable communities. Sterling refers to this as an “Integrative View” of teaching and learning (2001, p. 59), and I recommend considering this perspective in my workshops for faculty.

Once professors have decided that they want to infuse sustainability in their courses, they need objectives for their students. At Miami Dade College, we created a series of learning outcomes from which instructors can select. These outcomes were developed over the course of several months by a group of faculty members from a wide range of disciplines, and they are informed by the Earth Charter, Thomas Berry’s Twelve Principles for Understanding the Universe, UNESCO’s Pillars of Life Long Learning and Key Characteristics of Education for Sustainable Development, Sterling’s Ecological Paradigm for Education, and the Components of Ecoliteracy developed by the Center for Ecoliteracy in California (Earth Ethics Institute, n.d.). Instructors planning to make their course sustainability-related choose a minimum of three outcomes on which to concentrate. For example, in my advanced speech course for international students (EAP 1500), I opted for the following:

1. Explain the principles and ethical implications of the Earth Charter.
2. Examine situations and issues from a systemic and global perspective.
3. Compare and contrast human actions and attitudes toward the community of life and their impact on global sustainability.

I have created lessons, projects, and assignments that combine these learning outcomes with the course competencies of my advanced speech class. The content knowledge my students gain includes a basic understanding of how the Earth Charter was created, the principles it entails, and how these principles apply to my students’ daily lives, the people in our community, and citizens of other countries around the globe. With respect to systemic and global perspectives, I introduce them to the interconnectivity of ecosystems and the world economy including the way systems work through positive and negative feedback loops. The third objective centers on the impact of humans and how our daily decisions can affect people and other species in far away places, improve or degrade ecosystems near and far, increase or decrease prosperity, and influence the climate. While I focus on the present state of the world and the near future, I also invite my students to consider long-term consequences.

Dealing with Values and Ethics

Connecting sustainability to our course competencies, though perhaps difficult at first, presents only a minor hurdle. What makes sustainability education so challenging is the fact that we have to reach our students beyond the cognitive level; we need to expand instruction to tap into our students' emotions, values, attitudes, and behaviors, which means that we as educators need to venture into territory that is unfamiliar and often uncomfortable for us. Think about it: no one would expect a mathematics professor to invite students to ponder the ethical implications of solving an equation, but teaching sustainability requires that the instructor guides students through an ever-increasing body of research, facts, and case studies that range from complex to wicked and that are often not only highly politicized but also defy a single solution.

Until now, graduate schools have not addressed this when they prepare future faculty, not even in colleges of education. As a result, most professors have little theoretical knowledge of or practical experience with how to teach students sustainability. We may know WHAT our students need to know, but not HOW best to teach them. Critically examining his struggle with applying sustainability principles to his own life, Shrivastava concludes that mere cognitive understanding does not suffice: "Behavior change requires, among other factors, emotional engagement and passionate commitment," he writes. "Education for sustainability needs to seriously contend with this basic human fact" (2010, p. 443). In short, sustainability education means more than informing students about the environmental, economic, and social state of the planet and its inhabitants. Yes, we would like students to learn about these challenges, but what we really hope to bring forth through sustainability education is authentic learning and behavior change.

Authentic Engagement

When my students finally strip off the latex gloves they brought to our garden day so that they can touch the soil and feel its soft, damp texture between their fingertips, they become engaged in the day's lesson. The worksheets with English vocabulary related to organic gardening I handed out at the beginning of class might suffer some black smudges, but nobody minds. What matters is the collaboration between classmates who otherwise might never talk to each other and the sense of accomplishment students feel at the end of class when I turn on the irrigation system to douse the kale and lettuce seedlings and yellow and orange marigolds they just planted with water before Miami's bright morning sun reaches the small plot in the center of our campus.

Later in the week, a group of students will pull weeds, mulch, and harvest tomatoes as part of their service-learning projects. Other students research vegetarian recipes and post them on the website for the college's CROPS program (Community Rooted Organic Produce Services). Yet others analyze the pH levels of different bottled water brands in the chemistry lab and create reports and posters documenting their

findings for the Water Clock Project. In the community, MDC service learners clean wetlands, remove invasive plants, plant mangrove seedlings, and help restore turtle nesting grounds. They connect their practical experience to their course competencies and develop projects that they present in class or during campus fairs and symposia.

According to Rule (2006), who conducted research on authentic learning, the four main components consist of:

1. An activity that involves real-world problems and that mimics the work of professionals; the activity involves presentation of findings to audiences beyond the classroom.
2. Use of open-ended inquiry, thinking skills and metacognition.
3. Students engage in discourse and social learning in a community of learners.
4. Students direct their own learning in project work.

A well-designed service-learning project leads to the kind of authentic engagement sustainability education hopes to impart. Ideally, students manage their projects independently or in groups in a self-directed manner. Professors offer guidance and support along the way, but students ultimately select what they want to learn and how they want to go about it.

In their written reflections, students often describe their first outdoor experiences as “amazing,” “incredible,” “unique,” or just “different.” Some confess that they expected the class in the garden to be “boring” and that they were “surprised” by how much they learned and how much fun it was to be outside with their classmates. Last week, one student wrote that she stopped at a gardening center afterwards to buy a marigold plant for her balcony. She really liked marigold, she added, because the flowers are “beautiful AND useful” since they help repel pests. This is the authentic engagement and behavior change I like to see. Sustainability education is a process, and success happens gradually - one marigold at a time.

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