

Beyond Greening the Business School Curriculum

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Abstract

The business community is increasingly aware of the natural environment and how a significant number of business practices are adversely affecting that environment and our planet. Businesses must take a leadership role, through economic systems, not only in recovering and preserving our planet but also in managing financial and human resources with enduring respect and integrity. This article investigates the broad topic of sustainability, why it is “beyond green,” and how the topic can be successfully incorporated into business school curricula.

Social problems, according to management consultant Peter Drucker, are opportunities for firms to have positive impacts upon society. He stated, “None of our institutions exists by itself and is an end in itself. Everyone is an organ of society and exists for the sake of society. Business is no exception. Free enterprise cannot be justified as being good for business; it can be justified only as being good for society” (Drucker 2003).

Approximately forty years earlier, environmental icon Rachel Carson had used similar premises from systems theory to alert readers to impending problems in the natural world. According to Carson, “The balance ... is a complex, precise and highly integrated system of relationships between living things, which cannot be safely ignored any more than the law of gravity can be defied with impunity by a man perched on the edge of a cliff” (1962).

Both Drucker and Carson realized the interconnectivity of all living things, from plants and the climate, to the connections among human beings and business corporations. Systems theory enabled them to express how these living entities relate and react to each other in ways that are both desirable and undesirable. They offered their vision to society in the twentieth century and it is even more applicable today.

As we settle into the twenty-first century, a great opportunity exists for the business and scientific communities to work together for the greater good. “Going green” promises to benefit the human race on a variety of levels as more individuals and institutions realize the interconnectivity of systems, both manmade and natural. Alternative methods of generating energy and recycling are just two examples of how the scientific and business communities have joined forces to address environmental or “green” issues.

However, this effort is insufficient. A better approach would consider the natural environment, the financial goals necessary for businesses to survive and prosper, and

social science issues related to human resource management and society as a whole. This three-pronged approach—natural environment, financial and other free enterprise drivers, and social responsibility—is increasingly referred to as “sustainability.” Following a sustainability differentiation strategy is necessary for twenty-first-century businesses.

Business school curricula must also change to address this need. While some business schools may address the needs of a niche market in very specialized education for business and the environment, all business schools must evolve. The new curricula must give equal weight to the economic, social, and ecological issues that are more prevalent in the corporate decision-making arena, often referred to as the “triple bottom-line.” Incorporating these issues in the curriculum will produce business school graduates with new skill sets, motivations, and values.

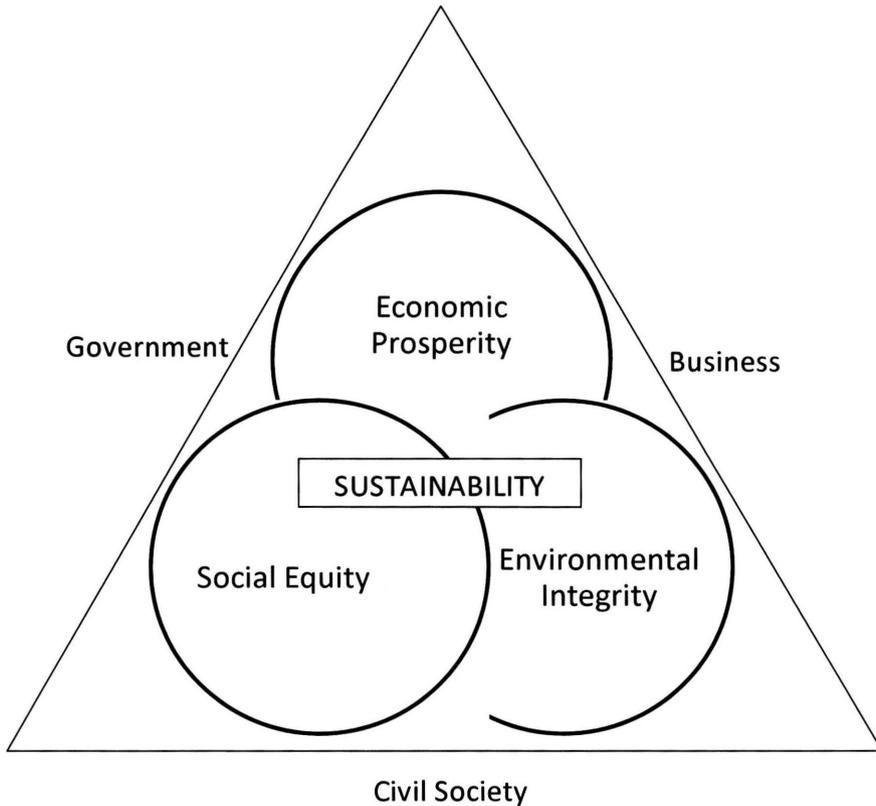
The purpose of this article is to provide information about current successful curriculum efforts in business schools in general and business schools at metropolitan universities in particular. First, sustainability is defined. Next, three general frameworks of curriculum deployment are presented. Then, we highlight some best practices in sustainability curriculum innovation. Attention is focused upon efforts to actively engage students and the community. The development of linkages between business schools and other university departments as well as collaborative efforts with other universities are identified. Metrics for evaluation are presented along with reasons why business schools benefit from choosing sustainability in their educational strategies.

Defining Sustainability

The June 2009 special issue of the *Journal of Management Education* focused on the issue of environmental education, which had been explored in the same journal approximately six years earlier. The guest editorial (Rusinko and Sama 2009) highlights the need to include not only concerns in the natural environment but also economic and social science concerns as well. During the same time period, a key player in global business education, AACSB International (2009), hosted its first sustainability conference, ushering in “a new era of responsible leadership.” A review of these two sources as well as other current literature emphasizes a common and developing theme: businesses must be change agents, not only in providing new environmentally friendly products and services but also in continuing to address financial and economic survival, as well as social concerns on the national and international levels.

It must be noted that no universally accepted definition for “sustainability” exists. As shown in Figure 1, The Daniels College of Business at the University of Denver includes economic prosperity, social equity, and environmental integrity in its definition of sustainability, along with the notion that the problems of the twenty-first century are multidisciplinary in nature and must be considered in the context of government, business, and civil society (Hutton 2009).

Figure 1. A View of Sustainable Development



More importantly, this issue has gained momentum campus-wide. Over 100 campuses in North America have “sustainability coordinators” and hundreds of universities worldwide have signed an agreement to enhance campus sustainability (Rands 2009). Global natural environment or “green” concerns, coupled with traditional business issues and an increased awareness of the multidisciplinary dimensions of twenty-first century problems, may ultimately bring about positive change in a variety of ways in the business school curricula.

Sustainability and the Business

School Curriculum: General Frameworks

Porter and Cordoba (2009) identified three systems approaches to sustainability that may benefit management and business educators in the evolution of sustainability curriculum design. The frameworks are the functionalist approach, the interpretive approach, and the complexity approach.

The Functionalist Approach

The functionalist approach is based on the physical and other hard sciences. Much of Frederick Taylor’s scientific management research, for example, belongs to this

category. Consequently, sustainability becomes a large, complex engineering problem. Both the manufacturing and service sectors apply this model. The new computer networking system used by McDonald's to monitor and control energy usage is one example; customers may be unaware of this change, even though it helped McDonald's cut energy usage by over 10 percent. Business schools that support the functionalist approach may choose to develop linkages to the physical sciences on their campuses and require specific science, engineering, or applied mathematics courses in their sustainability curriculum.

The Interpretive Approach

The interpretive approach acknowledges the limitations of the functionalist approach. Social and individual dimensions are incorporated into the learning process; students are encouraged to approach a problem from multiple perspectives. For example, what impact did the new computer control system at McDonald's have upon the natural environment and the individual customer? Will the cost savings be passed along to the customers? Will McDonald's focus only upon those changes that benefit the firm (i.e., control costs) or will their efforts extend to societal issues where there is no immediate traditional business gain? As business schools develop their sustainability curriculum, linkages to the social sciences and philosophy may emerge with a new perspective on organizational behavior, ethics, and moral codes.

The Complexity Approach

The third systems approach is the complexity approach. The ability to envision a firm as part of a much larger globally integrated system that focuses upon customer values, including costs, timeliness to market, product and service flexibility, and real-time customization, incorporates not only the expertise of functionalism and the interpretive dimensions of the social sciences but also a global perspective and the awareness of interdependent networks. Coverage of supply chain in the business curriculum may be a beginning in engaging students in this method. The McDonald's worldwide supply chain must include local providers of raw materials (beef, potatoes, wheat) who comply with McDonald's product specifications. However, McDonald's must respect local food preferences and tastes to the point that product specifications are modified in various parts of the world.

Ericsson CEO Carl-Henric Svanberg is a strong proponent of making the connections required to solve increasingly global problems, perhaps by using the third systems approach of complexity (Bisoux 2009). Educated as an engineer, he later earned a degree in business administration. He sees the need to connect individuals in the developing countries to the international communications grid. Inexpensive cell phones may be one way to accomplish this goal. CEO Svanberg and Ericsson have partnered with both the United Nations and its 2015 Millennium Goals and the Earth Institute at NYC's Columbia University on its Refugee Connectivity Project for small African villages. These efforts are directed toward access to the international communications grid. Ericsson has also partnered with other leading universities to host annual International Tech Strategy Business Case Competitions.

Best Practices in Sustainability Curriculum in Business Schools

A survey of twenty-six business schools found that only about one-third had either green or sustainability courses or programs (Bates, Silverblatt, and Kleban 2009). Although the sample is small, it implies that business schools are beginning to engage in this timely endeavor.

Within the Aspen Institute, Beyond Grey Pinstripe (2008) researches and ranks full-time MBA programs with particular focus on the social and environmental content of the curriculum. According to the 2007–2008 survey, the number of elective courses per school that are largely devoted to social or environmental issues has increased from five courses per school in 2005 to six courses per school in 2006 (20 percent). Thirty-five of the schools offer a special concentration or major that allows students to focus on social and environmental issues.

In reviewing the literature for this article, the authors found that sustainability is being incorporated into business school curricula in three ways. The three methods are: (1) threading the topic throughout the curriculum, (2) developing specialized courses in sustainability, and (3) developing programs in sustainability.

Threading

Threading may be accomplished in a variety of ways, such as (a) integrating the topic of sustainability in a number of courses throughout the business and general course curricula, (b) extracurricular activities in the community, (c) extracurricular activities in business and industry, (d) sustainability-focused forums, (e) funded community projects, and (f) voluntary organizations. In most cases, the value of threading to the university is that the course modules and service opportunities can be developed very quickly with minimal expenditure of resources.

Methods for threading the topic throughout the curriculum focus upon modules, cases, or specific writing assignments in a variety of courses covering the topic of sustainability and how sustainability relates to the overall course material. For example, in an introductory course in operations management, students may explore the ideas of redesigning a product or service so that either material may be recycled or the environmental impact may be minimized. *Sustainable Value* (Laszlo 2008) and *Discovering Design* (Buchanan and Margolin 1995) are useful resources for professors to use in incorporating sustainable design issues into an introductory operations management course. A number of other books also include this topic in course coverage (see Table 1).

Table 1. Examples of Textbooks and Books Concerning Sustainability.

Management	<p>Dess, Gregory G., G.T. Lumpkin, and Alan Eisner, <i>Strategic Management: Creating Competitive Advantages</i> (McGraw-Hill, 2010). New edition adds discussion of environmental sustainability throughout the text.</p> <p>Fiksel, Joseph, <i>Design for Environment—A Guide to Sustainable Product Development</i> (McGraw-Hill, 2009). The book features in-depth case studies and a comprehensive toolkit for design in the context of product life-cycle management.</p> <p><i>Harvard Business Review on Green Business Strategy</i> (Harvard Business Review Paperback Series, 2007). Collection of HBR articles shows advantages of socially responsible strategy.</p> <p>Jacobs, F. Roberts, and Richard B. Chase, <i>Operations and Supply Management: The Core</i> (McGraw-Hill, 2010). New edition includes sustainability in the strategy chapter and in several other chapters.</p> <p>Kinicki, Angelo, and Brian K. Williams, <i>Management</i> (McGraw-Hill, 2009).</p> <p>Stevenson, William J., <i>Operations Management</i> (McGraw-Hill, 2009). New edition includes discussion of sustainability process management.</p> <p>Werbach, Adam, <i>Strategy for Sustainability: A Business Manifesto</i> (Harvard Business Press, 2009).</p> <p>Wheelen, Tom, and David Hunger, <i>Strategic Management & Business Policy: Achieving Sustainability</i> (Prentice Hall, 2010). New edition has new theme of environmental sustainability.</p> <p>Winston, Andrew, <i>Green Recovery: Get Lean, Get Smart, and Emerge for the Downturn on Top</i> (Harvard Business Press, 2009).</p>
Business	<p>Ferrell, O. C., Geoffrey A. Hirt, and Linda Ferrell, <i>Business: A Changing World</i> (McGraw-Hill, 2009). New edition includes “Going Green” boxes and a focus on business responsibility and sustainability throughout the text. The new edition is printed on 10 percent recycled paper.</p> <p>Friend, Gil, <i>The Truth about Green Business</i> (FT Press, 2009).</p> <p>Nickels, William G., James McHugh, and Susan McHugh, <i>Understanding Business</i> (McGraw-Hill, 2010). The new edition includes “Thinking Green” boxes.</p>

Wirtenberg, Jeana, William G. Russell, and David Lipsky, *The Sustainable Enterprise Fieldbook: When It All Comes Together* (AMACOM, 2008).

The book uses models, tools, case studies, and examples from a wide range of companies to show readers how they can implement sustainability in their organization.

Marketing Perreault, William D., Joseph P. Cannon, and E. Jerome McCarthy, *Essentials of Marketing* (McGraw-Hill, 2010).

While course texts are a good starting point for incorporating sustainability into the curriculum, more mature approaches require additional resources, especially in the interpretive and complexity approaches previously defined. Textbooks may be supplemented with case studies, projects, and service-learning opportunities.

An interpretive approach concerning sustainability is taking hold not only in some graduate programs but also at the undergraduate level in a number of business schools. Case studies involving firms such as Stonybrook Farms and Ben and Jerry's Ice Cream, which have been successful in incorporating green and ethical and societal issues in their business missions, are frequently used in the classroom. Students can easily link the financial metrics of the firm to the overall success of firms that have adopted an environmentally focused mission.

Another example of an approach that is interpretive in design and presentation is a cross-campus initiative at the University of North Carolina-Greenboro (Welsh and Krueger 2009). The program is interdisciplinary in nature and housed in the Bryan School of Business and Economics. An example of a particular program, Project Green Leaf, focuses upon environmental stewardship and economic sustainability in the state's fishing and farming cultures (<http://www.greenleaf.uncg.edu>).

Rachelle Sampson and Mark Stewart also described a campus-wide initiative at the University of Maryland that provides support for faculty in a variety of disciplines as they incorporate sustainability into their courses. The program, named the Chesapeake Project, suggests that local examples will be used in the courses to teach sustainability. A positive aspect of the cross-discipline approach is that students interact with students from multiple disciplines who bring different views and values to current issues involving sustainability. The students tend to be more innovative in their approach to problem-solving and can draw connections between different aspects of their education as well as making connections to the community (Aspen Institute 2009, 3–5).

Florida International University's College of Business Administration (2009) focuses upon civic engagement, or active social responsibility, as a way for the university to share its knowledge, expertise, technology, and resources with the community. This unique "threading" in the business school curriculum allow students in management, accounting, and real estate to participate in service-learning opportunities not only in South Florida but also abroad. Although the emphasis is on the third prong of

sustainability—corporate social responsibility— the experience provides many opportunities for students to use an interpretive approach to interact with the community in areas related not only to the natural environment but also to societal issues.

An approach that is basically functionalist in design is an internship program developed by the Environmental Defense Fund in its Climate Corps program (VanderMey 2009). The MBA student interns attend intensive training sessions in which they learn about efficient light bulbs and water heaters, and heating and ventilation efficiencies, as well as other energy-saving methods. Then the students work with firms to make the financial and economic case for adopting energy-efficient products. Students from New York University's (NYU) Stern School of Business, the Massachusetts Institute of Technology (MIT) Sloan School of Management, and the Yale School of Management are among those who have participated. Companies engaged in the program include TXU Energy, Sungard Data Systems, and Sodexo, among others.

In another energy-related program, students at Boise State are assisting small businesses in evaluating their energy usage. Students from a variety of disciplines—business, environmental health, science, and engineering—are trained via a partnership with the Idaho Small Business Development Center (SBDC) to analyze utility bills and complete onsite energy evaluations. “Small businesses can save as much as 20 percent of their utility bills through energy efficiency,” stated the Idaho SBDC Environmental Assistance Coordinator (quoted in Lamb 2009).

As a further indicator of the interest in sustainability, more than fifty North American schools participated in the 2009 North American Sustainability Competition. Winners from the Schulich School of Business—Canada's Global Business School—at York University (2009) rose to the challenge of helping Sun Microsystems boost its bottom line by a billion dollars through environmentally friendly initiatives. The winning team received \$8000 in prize money.

The School of Management at George Mason University (2009) sponsors an annual business plan competition with a sustainable development theme. There is a special prize (\$500) for the Outstanding Sustainable Plan. The competition gives special recognition to plans that demonstrate sustainable impact, such as carbon-neutral or low-carbon impact or the use of recycled and renewable inputs. Students in the New Venture Creation course and students across the university participate in the competition.

Net Impact is an international nonprofit organization of students and professionals with over 230 volunteer-led chapters worldwide. Net Impact's mission is “to inspire, educate and equip individuals to use the power of business to create a more socially and environmentally sustainable world” (Net Impact 2010). As an indicator of its success, more than two thousand individuals attended the 2008 conference held at the Wharton School. In addition to its mission, this organization founded by ten MBA student interns provides networking and career enhancement opportunities for members (Net Impact 2009a).

Courses in Sustainability

Developing specific courses in sustainability is another way to incorporate sustainability into the business school curriculum using a functionalist approach. A typical course might have the instructor introducing the topic to the students. Then faculty from the natural sciences may be invited as guest lecturers to highlight the impact of business operations upon global warming. To complete the course, the business faculty member can assist the students in synthesizing the information. Local business leaders can also be involved not only in the classroom but also by opening their firms and sustainability practices to the students for review and discussion. As in threading, a dedicated course, utilizing current faculty from across the disciplines and local business leaders, is quickly developed and cost effective. The course may also serve to set the stage for further collaboration and curriculum development between the academic units and the business community.

Examples of courses currently taught at universities include the following: “Environmental Choices in the 21st Century,” “Environmental Strategy and Sustainability,” and “Sustainability, Environmental and Social Risk.” Examples of student learning objectives for a course might include (a) determining how sustainable strategies protect the natural environment and are also financially viable, (b) investigating sustainable businesses worldwide via the Internet, (c) developing a sustainability plan for a local firm, and (d) explaining how a firm’s sustainability plan can be linked to the community for the mutual benefit of the community and the firm (Bates, Silverblatt, and Kleban 2009).

In a unique presentation of sustainability, the Bauer College of Business in the University of Houston will offer the first carbon emission trading course in the world. The course will be taught at both the undergraduate and graduate levels and will begin at the graduate level. Although the course requires scientific and financial expertise, it was developed in response to energy trading problems such as those identified after the Enron scandal. In essence, the motivation for the course was a corporate responsibility structural need—the third prong of sustainability (Cherian and Kamath 2009).

In an independent study course, Dutton (2009) described a student internship at Randolph-Macon College that focused upon the financial and ethical factors affecting corporations in adopting sustainable business practices. The student gained expertise in the newly evolving field of environmental accounting. Five technology firms were the focus of the research. By analyzing the firms’ annual corporate responsibility reports and financial reports, the student consumed minimal resources, since the documents are both electronic and publicly available. The research was funded through a sponsored undergraduate research fellowship.

Universities may also choose to begin their sustainability course offerings as individual online courses (University of Southern Maine 2009b) to gather information about potential student and business interest in the topic. The advantages of online courses

are comparable to the advantages of online programs: (a) scheduling flexibility, (b) insignificant facility costs, and (c) minimal carbon footprint, among others.

Undergraduate Programs in Sustainability

A variety of approaches are also being initiated for developing programs in business schools in sustainability at the undergraduate level. Often a minor or certificate in sustainability is possible. Either approach involves the student completing 12–15 hours of coursework in the area. Schools may develop the introductory course and the capstone course within the business school environment (University of Southern Maine 2009a). Then students study specific courses in the natural and social sciences (taking either a functionalist or interpretive approach) that focus upon sustainability. Students may also be given the opportunity to choose appropriate electives, such as environmental economics or environmental marketing, as part of the course work. A certificate awarded at the completion of the courses or a statement on the student's transcript documents the academic experience.

The advantages of this approach are numerous. Again, it may be both quicker and more cost effective for the business school to begin a cross-disciplinary program that requires minimal in-house course development. The approach also lends itself to attracting students from other disciplines who may benefit from taking the sustainability-focused business courses. In essence, students from a variety of academic programs can use elective credits to develop an expertise in sustainability.

According to *Business Wire* (2009), the University of Wisconsin-Extension has developed the first online undergraduate degree in Sustainable Management. Four campuses of the University of Wisconsin—at Parkside, River Fall, Stout, and Superior—have collaborated with industry leaders in sustainability to develop the program curriculum. The twenty-one-course program creates a minimal carbon footprint and offers the flexibility of online education. The University of Wisconsin system incurs insignificant additional cost since existing faculty and business leaders collaborated on the program and the physical facility requirements for the program are negligible.

Since a hands-on problem-solving approach is used, this online approach offers many possibilities for programs and ideas for other metropolitan universities. Students who are employed are attracted to the program for its flexibility. They may also solve sustainability-related problems for their employers. For example, a manager might consider the costs of various energy sources (e.g., solar, coal, or biofuels) and compare not only the financial costs but the carbon costs as well. Another example is the human resource manager who considers the long-term impact on community welfare of hiring and firing decisions.

Specialized Masters Degrees

Specialized degrees in sustainability are also being developed at a number of institutions of higher education, particularly in master's degree programs. It appears that more graduate business schools offer sustainability courses than do undergraduate-only programs. And schools with more courses on the graduate level also have more courses on the undergraduate level. While some schools focus upon local business and industry, others may incorporate an international dimension into the program. Although some of the programs appear to be functionalist or interpretive in approach, others tend toward the challenge of complexity.

While the United States has many of the finest business schools in the world and is a business leader in many arenas, the country may lag behind some other nations in sustainability. As an example of a complexity approach, Scandinavian companies such as IKEA and Novo Nordisk, along with academic institutions such as the Copenhagen Business School Center for Corporate Social Responsibility, are collaborating with U.S. universities to provide an international perspective and an awareness of the dependency of interfacing networks to U.S. business students. UN PRME (United Nations Global Compact on the Principles for Responsible Management Education, www.unprme.org) has served as a conduit between the Copenhagen Business School Center for Corporate Social Responsibility and U.S. institutions.

UN PRME has also ignited sustainability programs in U.S. universities. Some business schools are incorporating ideas from UN PRME in MBA programs that address not only the sustainability issue but also the international component of MBA degrees. Other business schools are collaborating with disciplines across campus in master's degree programs that emphasize either the natural or social sciences in addition to business.

MBA Degrees

The Merrick School of Business, University of Baltimore, for example, is the first University System of Maryland institution to sign UN PRME (Sampson and Stewart 2009). This commitment involves continuous improvement on the part of the signing organization concerning the PRME principles. The Sustainability Management specialization in the MBA program focuses on the triple bottom line: people, planet, and profit. In addition to courses in managing the sustainable enterprise, sustainability accounting, and e-commerce and supply chain management, among others, students will also be engaged in projects in conjunction with local, regional, and global organizations.

The University of Baltimore also collaborates with other universities in MBA sustainability programs. According to the Director of the University of Baltimore/Towson University Collaborative MBA program, "Globalization, pollution, decline of industries, human resource challenges, and scarcity of resources appear to indicate that many of today's business and economic models are unsustainable.... Corporate sustainability represents a business paradigm shift from traditional approaches to management" (Towson University 2009).

The School of Business at Portland State University's MBA+ program offers a Sustainable Enterprise concentration consisting of 16 credit hours, including two required courses, Managing Sustainable Enterprise and Metrics for Sustainable Enterprise. Students can earn a Sustainability graduate certificate. In addition, they offer a specialization (three courses) in Global Business and Sustainability. In the Masters of International Management (MIM) program, students can complete a Global Corporate Sustainability Specialization by completing three courses.

The University of Colorado Denver Business School (Wasserman 2009b) offers an MBA specialization in Managing for Sustainability that requires four electives, three of which must be business courses, while the fourth course can be from another discipline. Courses are offered online. Alumni and nondegree students may earn a Certificate in Managing for Sustainability.

Master of Science Degree

The Business School at University of Colorado Denver, in partnership with energy industry, government, and community leaders, has created an MS in Global Energy Management (GEM). The program requires eight core courses and four electives. Graduates receive training in all areas of energy management including renewable and alternative energies (Wasserman 2009a).

The Value of Sustainability in the Business School Curriculum

There are numerous reasons that the topic of sustainability is of value in the business school curriculum. Significant reasons include (a) identification of current business and government practices or "talking the talk," (b) visibly aligning business education with current business and government practices or "walking the walk," (c) student demand, and (d) the job market.

"Talking the Talk": Successful Sustainable Enterprises

Faculty and administrators interested in identifying the value of the business school sustainability curriculum may begin by examining successful business enterprises that are recognized for their strong environmental and social concerns as well as their profitability (Choi and Gray 2008). By living the values of the founding entrepreneurs, many of these firms have created organizations of like-minded employees and have attracted like-minded and loyal customers. For example, IKEA posted \$31 billion in revenue in 2008 (Hoover's 2009). Ben & Jerry's posted a \$239 million revenue when the firm was sold in 2000 (Choi and Gray 2008).

In the past year, the U.S. government has also engaged in stimulus activity that appears to support sustainability. The American Recovery and Reinvestment Act of 2009 includes several investment goals: (a) computerization of healthcare records to reduce errors and costs, (b) making college more affordable to students, (c) investing in domestic renewable energy sources, and (d) weatherization of federal building and

qualifying homes (RATB 2009). Each of these goals can be connected to an aspect of sustainability. By listening to “the talk” of business and government, business schools can discover opportunities for not only developing state-of-the-art education in sustainability but also attracting students and support from the business and government communities.

“Walking the Walk”: Sustainable Physical Facilities

Business schools such as The Dorothy D. and Roy H. Park Center for Business & Sustainable Enterprise in Ithaca, New York, and the Labovitz School of Business and Economics, University of Minnesota Duluth, are involving their faculty and students during the design phase of LEED certified campus buildings. The building projects become educational laboratories and serve as proof positive that those college campuses and business schools are committed to sustainability.

Building a sustainable business school facility might be used to launch a university-wide sustainability initiative that attracts not only students but also their parents, new faculty, and members of the local business community. The administration and faculty of the Labovitz School of Business and Economics, University of Minnesota Duluth, has found that the LEED certified business school facility has been a major selling point to potential students and their parents as well as a means of attracting new faculty (Knudsen and Sims 2009).

Another College of Business Administration building project at California State Polytechnic University, Pomona, cites the sustainability benefits of the new business school facility. The benefits include energy efficient lighting, thermoplastic membrane solar reflective white roofing, and low “e” glazing window systems (Cal Poly Pomona 2009).

In addition to the environmental aspects of sustainability, new business schools at metropolitan universities are being located in downtown areas to support both regional economic development and to contribute to the overall well-being of the community. Two examples are the George Dean Johnson, Jr., College of Business and Economics in Spartanburg, South Carolina, and Belk College of Business in Charlotte, North Carolina.

According to Stockwell and Parker (2009), “The presence of the Johnson College of Business and Economics in downtown Spartanburg is specifically targeted to raise the innovative capacity for regional businesses. The infrastructure to support innovative business practices and emerging enterprises is a key element to raising prosperity for the region.” The facility is targeted to open in May 2010.

UNC Charlotte recently broke ground on the Center City Building, which anticipates achieving the LEED silver certification (Belk College 2009). “The \$50.4 million building is the only University of North Carolina classroom building conceived and designed specifically to serve the business, organizations and residents of an urban center.” When completed in 2011, the Center City Building will offer the Belk College

of Business MBA, an MBA in Sports Marketing and Management, the UNC School of Architecture Master of Urban Design, and various other graduate classes. “In its entirety, the Center City Building project will be a catalyst for redevelopment in the historic First Ward,” the UNC Charlotte chancellor said. “A four-acre park and urban village development are planned for areas adjacent to our stunning new academic building. Imagine students arriving by light rail and relaxing in First Ward Park before heading off to class in the Center City Building” (Belk 2009).

Student Demand

The younger generation of college students appears to be more idealistic and eager to solve international problems such as natural resource depletion. A 2008 international business report on corporate social responsibility found that recruitment and retention of staff was a motivator for social responsibility in all of the countries surveyed (Grant Thornton 2008). In another study of more than 1500 employees, more than 70 percent of the respondents stated that private companies’ efforts on climate change and social responsibility strengthen a firm’s reputation (Bread and Butter 2008). These studies suggest that current students, who will be tomorrow’s business leaders, are not only interested in the topic of sustainability but will incorporate the values into their current and future personal and professional life styles. They will live in an increasingly complex world and benefit from efforts by universities to challenge them with a complexity approach to the curriculum.

Green Collar Jobs

In the authors’ home state, a recently released study by Woodward and Guimaraes (2009) estimated the impact of natural resources on the economy of South Carolina for 2008. They report the recreational assets of sandy beaches and surf added about \$3.5 billion to the state’s economy and supported nearly 81,000 jobs. The total natural resource impact on the economy of South Carolina (beaches, fishing, hunting, wildlife viewing, boat-building, forestry, mining, and marine fisheries) was estimated to be \$30 billion annually and natural resources support more than 230,000 jobs.

According to a study funded by Pew Charitable Trusts (2009), the clean energy job growth for South Carolina from 1998 to 2007 was 36.2 percent compared to overall job growth for the same period of 2.2 percent. In 2007, there were 884 businesses and over 11,000 jobs in the clean energy economy.

Pollin et al. (2008) report on the impact of a proposed green economic recovery program. They predict a net job creation of approximately 28,000 jobs. The green recovery program would benefit the construction and manufacturing sectors. In a later study, Pollin, Heintz, and Garrett-Peltier (2009) estimate the American Recovery and Reinvestment Act and the American Clean Energy and Security Act will result in \$150 billion per year of new investment. South Carolina’s share would be about \$2 billion and about 25,000 jobs.

Leadership and Support of Sustainability Initiatives

A review of current literature and university Web sites supports Porter and Cordoba's (2009) three systems approaches to sustainability in the business school. While some business schools take a functionalist approach by developing support systems through partnering with departments in the physical and natural sciences, other schools utilize the interpretive approach by involving not only the physical and natural sciences but faculty and students in the social sciences as well. Either of these approaches lends itself to the development of leadership systems within the campus community.

The complexity approach extends the notion of support and leadership for sustainability to a much broader community and, often times, an international base. This approach appears to be consistent with Mintzberg's (2009) comments concerning twenty-first century management and leadership approaches in general.

According to Mintzberg (2009), most U.S. enterprises were built by leaders who were also managers and actively engaged in management. He goes on to state, "Many businesses will have to be restored as communities ... from the middle out, not from the top down." Downsizing and other current business practices need to be reconsidered in the context of longevity of the firm. The common thread between Mintzberg's commentary and sustainability is the triple bottom line: profit, people and planet. Managers and leaders need to consider all three in decision-making. By being *actively engaged* in the organization, managers and leaders will benefit from innovative ideas at all organizational levels and be aware of the contributions made by individuals throughout the enterprise.

Measuring Success

In the current economic climate, measuring success in quantifiable terms is a necessity for both administrators and faculty as business school curricula evolve. Well known approaches, such as assessment of learning goals, are necessary but insufficient as financial investments in higher business education are scrutinized by the public and by business leaders. Evidence of student demand (growing enrollments), evidence of public and business demand (funding opportunities), and alumni and community feedback are some of the other methods highlighted in business school sustainability initiatives for measuring success.

Learning Goals

Traditional methods of developing and measuring attainment of learning goals for students can be used in new courses or programs in sustainability. The learning goals must address the multidisciplinary issues involved in sustainability as well as having student focus directed outside of the classroom. Involvement in projects in the business environment through internships, cooperative experiences, or volunteerism is essential. These projects can be developed within the local community or at the state, national, or international level.

An example of learning objectives for a green course may be found in Bates, Silverblatt, and Kleban (2009). The authors developed six learning objectives for the course. In the course, students must complete a sustainability audit for a firm and then develop a green strategy for the same firm. An example of one of the six learning goals is “students learn the rationale behind green projects: green strategies can protect the environment and the bottom line” (Bates, Silverblatt, and Kleban 2009). Measure of this goal and the other five course goals is completed through (a) classroom activities, (b) evaluation of a homework notebook that includes eight specific assignments, and (c) an end-of-the-semester oral report.

Student Enrollment

Student enrollment is another method for measuring program success. The growth of Net Impact, its mission, and student engagement are indicators of the attraction of students to sustainability issues. Net Impact is a global network of over 7000 emerging leaders “with a mission to inspire, educate, and equip individuals to use the power of business to create a more socially and environmentally sustainable world.” The nonprofit organization also encourages students to become involved in local universities in support of curriculum change for study in sustainability (Net Impact 2008). Ultimately, students may drive curriculum changes that benefit career options.

Funding Opportunities

A variety of funding opportunities exist for sustainability projects in education and might serve as a measurable indicator of success. One example is the Dr. Alfred N. and Lynn Manos Page Prize for Sustainability Issues in Business Curricula. The competition is sponsored by the Moore School of Business at the University of South Carolina in Columbia. Its purposes are twofold: (a) to heighten student awareness of environmental sustainability issues and (b) to demonstrate the Moore School’s commitment to sustainable business education. The School also houses a database of teaching materials for sustainability (University of South Carolina 2010).

Alumni and Community Feedback

Individual schools are in the beginning stages of collecting alumni and community feedback about programs in sustainability. Net Impact has taken the lead in collecting information about MBA programs with a sustainability focus. In its 2009 brochure *Business as UNusual: The Student Guide to Graduate Programs*, for example, the business school at the University of Arkansas at Little Rock is said to be “most fitting for someone interested in building upon an existing base of social/ environmental impact activities with opportunities for significant growth” (Net Impact 2009b, 156).

Another example of feedback from a student and the community is a student-driven sustainability project with demonstrated success to the employer. In an energy-related project completed by a part-time MBA student at the University of Cincinnati College of Business, the student discovered the source of a decline in thermal efficiency in an electric generator. The project was completed at Duke Energy Generation Services, where he is station manager (Camm 2009).

Conclusion

Given the strong bond between a metropolitan university and the community, metropolitan business schools might be in a unique position to advance the development of sustainability in the business curriculum. Many approaches work and many benefits result. David Cooperider's (2008) statement concerning sustainability for business in the twenty-first century may be adapted for sustainability in business education and serves as both a challenge and an affirmation for educators: "How do we turn the social and global issues of our day into bona fide business (education) opportunities?... adopting sustainable practices (and academic direction) is not an obligation for businesses (educators)—it's a contemporary differentiator, a foundation for success. It promises to lead businesses (business schools) to surprising new discoveries, (stronger enrollments, heightened opportunities for graduates) and greater significance to society."

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