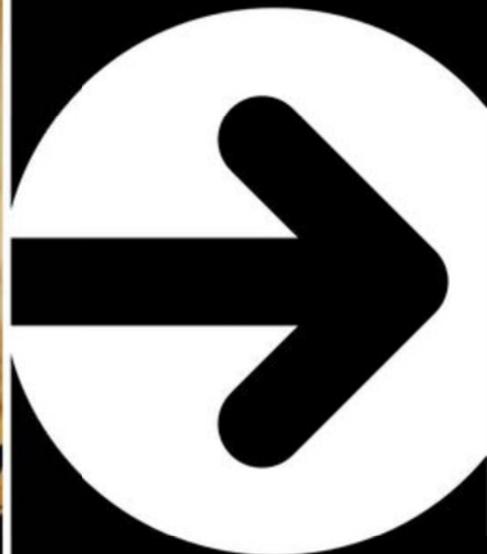


REINVENTING the Image of CTE Through



BY RUBÉN BERNARDINO AND JAMES SEAMAN

Career and technical education (CTE) carries a long-held image misconception—an outdated observation harbored by students, parents and the general public that CTE lacks academic rigor and only leads students to low-skill jobs. Despite these misconceptions, CTE is often a perfect option for many students to discover their passions, and to develop skills to enter the workforce or to continue on to college.

There is a growing body of research that suggests CTE is gaining mainstream acceptance among students and the public at large. Prime examples of this shift include data from a 2010 study at the University of Nebraska in which Nebraskans noted that they place equal importance on both CTE courses and traditional academics; in 2005, Western Michigan University research revealed that 80 percent of high school seniors believe CTE programs are suitable for students of all

abilities and levels of achievement.

Rooted in project-based learning, CTE offers learners the skills necessary to enter the 21st century workplace. The Partnership for 21st Century Skills identifies skills such as critical thinking, problem solving, communication and collaboration as vital skills for the future. The hands-on approach to education in CTE equips students with all of these skills. Indeed, the CTE community has made excellent strides toward image change, but how can

sustainability



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it become more prolific? How can CTE enhance its image so as to attract new students? One solution is through sustainability. Sustainability in education is about teaching students to be environmentally and socially responsible, therefore protecting the planet for future generations.

The Case for Sustainability

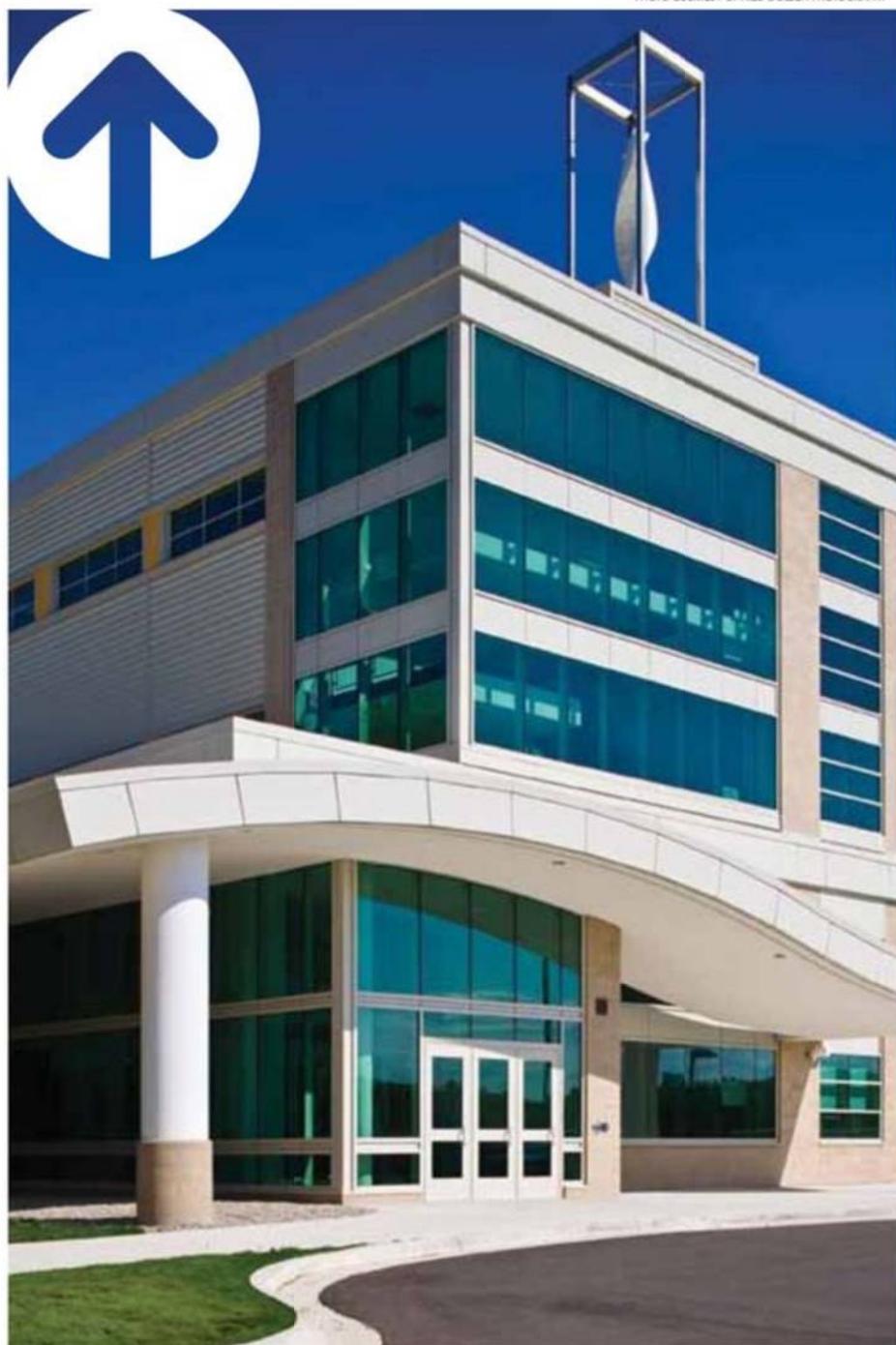
For the first time in history, humans have reached the capacity to overwhelm our natural life-sustaining systems. The esca-

lation of global environmental challenges provides the perfect storm to unleash CTE's full potential. The following represents a sample of environmental concerns that we are facing:

- World's energy demand is increasing
- Increased levels of pollution
- Escalated carbon emissions
- Climate change
- Water scarcity
- Product and building toxicity

Public awareness about the need for sustainability has led to a growing demand for more energy-efficient and environmentally responsible products and facilities. Bill Coburn of PricewaterhouseCooper states that "the growing demand for environmental products and services could translate into one of the biggest new markets in recent memory." The Apollo Alliance predicts that the United States could see as many as three to five million new green jobs in the next

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▲ A wind turbine that is part of the architecture can serve as a sustainable icon.
 ▲ Not only is it used to generate energy, but it defines the entrance to the building.

10 years. These statistics translate into huge opportunities for young people about to enter the workforce. In general, the younger generation is concerned about the environment and therefore they are attracted to programs that promote sustainability. The 2006 Cone Millen-

nial Cause Study suggests that young people are more likely to work for and buy products from companies that are socially and environmentally responsible. CTE has a unique opportunity to not only set an example for all students, but due to the application-based nature of CTE

programs, there is a direct opportunity to apply these sustainable practices.

By utilizing sustainable practices to create a green image, CTE facilities can position themselves to attract new students and change public perception. This image is comprised of internal practice and external projection. To reach maximum potential, sustainability must be carried through both CTE's programs and its facilities.

Program Greening

The most obvious method in bringing sustainability to the forefront at a CTE facility is to introduce new programs that focus solely on the new green economy. These programs lead to jobs such as solar panel installer, wind turbine technician, energy auditor and biofuel technician. But the greatest potential (often overlooked) lies with greening existing programs. Teaching students how to make every profession green, or at least a bit greener, is a powerful tool not only for CTE, but for the future role those students will play in their careers. A three-part strategy can be used to green any existing program.

- **Macro**—What effect does this program have on the environment or society as a whole?
- **Micro**—What effect does this program have on the health and well-being of the providers or users of this program's service?
- **Resource Management**—What resources is this program using and how can they be made more sustainable?

Let's take cosmetology as an example of a CTE program and profession that was not born green, but can be made green. From a macro point of view, students can learn how chemicals found in beauty products can adversely affect the environment. For instance, alkylphenol ethoxylates (APEs) are found in some shampoos and hair dyes. When washed down the

drain, APEs do not biodegrade easily and have been found downstream from sewage treatment plants. APEs are toxic to fish even at low doses. On a micro level, these same APEs are known to enter our blood stream and cause harm to our bodies.

Lastly, considering resource management, the profession can broadly affect everything from water use to waste disposal. An example is the repurposing of hair clippings for oil spill cleanup. With this type of knowledge, cosmetology students can choose sustainable products and manage resources which add value to the skills they can offer future employers and customers.

Greening existing programs should not require major changes or additions to the curriculum. The greening of these programs is based largely on leading by example. When students are exposed to a program with an undercurrent of sustainability, then sustainability becomes second nature to them. These practices are universal in principle; when applied to one program they can then be easily translated to others as well.

CTE graduates from green programs become great assets to any employer as they bring the precious know-how to become sustainability champions, and eventually can manage the greening of their employer's facility and brand.

Facility Greening

Through greening the CTE facility, an environment is created that is a living example of sustainable education. Buildings are a major contributor to pollution and energy consumption, so responsible energy management can reduce a facility's carbon footprint. According to the U.S. Department of Energy, residential and commercial buildings account for nearly 40 percent of the total U.S. energy consumption and carbon dioxide emissions. Through reducing energy consumption and choosing renewable energy, operating expenses can be reduced, saving money over the lifetime of the building.



▲ A vegetative roof can improve building insulation and also significantly reduce stormwater runoff. It is an opportunity to make the roof of a building, which would otherwise be forgotten, into an attractive element.

In addition, these sustainable elements can be used as hands-on demonstration tools for the students. Sustainable practices within the facility set an example for students, as well as act as a powerful education and marketing tool for the community at large. Whether it is building a new facility or renovating an existing one, the most effective and economical green strategy is to start with reducing energy consumption. Wind turbines and solar panels are powerful tools, but their effectiveness is dependent on the geographic location of the facility. The following are a few examples of techniques that can be used to reduce energy consumption:

- Increase building insulation
- Implement a geothermal system
- Use natural daylight to light spaces

- Implement energy-efficient lighting
- Install occupancy sensors for efficient use of lighting
- Add a vegetative roof for improved building insulation and stormwater mitigation

Reducing energy consumption is only one practice in a sustainable building. Other practices such as minimizing waste, improving the indoor air quality for the occupants, and creating a low impact to the surrounding ecosystem are vital components. The LEED rating system identifies six categories that should be considered when designing a green building. The six categories are:

- Sustainable Sites
- Water Efficiency

- Energy and Atmosphere
- Material and Resource
- Indoor Environmental Quality
- Innovation and Design Process

Each category outlines specific items that can be implemented to achieve a

sustainable solution. The LEED rating system serves as an excellent guide in considering the building holistically. The rating system provides guidelines in evaluating options for making a CTE facility more sustainable. It might not be necessary to obtain LEED certification,

but doing so would demonstrate to the public the school's dedication to sustainability.

To convey a green image, it is important to discover ways to call attention to the building's green elements. These visual cues further enhance students' and visitors' perception that sustainability is the foundation for the educational opportunities that are offered within. It is also through these building transparencies that students can learn facets that apply to their selected programs. For instance, wind turbines and solar panels serve as great exterior icons for sustainability. These should be positioned in prominent locations at the school for the public to see. To expose the students and public to what these renewable energy devices are doing, interactive energy monitoring displays can be placed inside the school. These elements can serve as vital teaching tools.

Sustaining an Image

CTE centers can achieve multiple benefits through the process of introducing sustainability into their programs and facilities. There are synergies that can be created by looking at the programs and the building holistically. It is through this overlap that a complete image shift can take place. **I**

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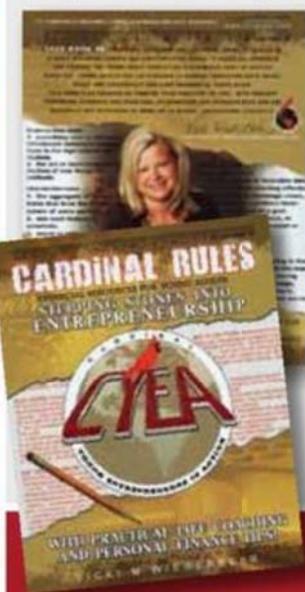
About the author:

Vicki Wiederkehr brings over 11 years of educational experience and entrepreneurship passion to the audience of educators. She successfully runs her own e-commerce business, cardinalsellingservices.com, and writes books to young adult audiences and adult audiences as well. "Cardinal Rules" of being entrepreneurial is not only used in high schools but also in workforce development programs. It is also available through ACTE's online bookstore.

*"This book is a 'must read' for students and young adults who are approaching decisions on their future education choices and how to pay for them. Besides providing a road-map for starting and succeeding in an e-bay business, it provides thoughtful guidance on how to acquire the necessary life skills which are so essential to success in any business or career." - James D Edwards
Member of Indiana State Board of Education*

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