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How Schools Can Reduce Energy Costs and Promote a Sustainable Future

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Part III of a three-part sustainability series by guest blogger Larry Eighmy, Managing Principal of The Stone House Group

When you think back on your education, what experiences had the most impact on you? Many would cite team projects, fieldwork, and hands-on learning experiences as their strongest memories. Personally, my 8th-grade camping trip helped me retain more information about the environment than any previous classroom lecture ever did.

All educational institutions share the goal of preparing their students for the future--but can they achieve this goal while they simultaneously compromise that future by harming the environment? I believe schools have an obligation to protect and enhance the world they're preparing their students for by being good stewards of the environment--and that the steps to get there aren't as difficult or expensive as many seem to think.

In the United States, buildings alone consume 41 percent of our total energy, 65 percent of our electricity, and 5 billion gallons of potable water per day. School buildings are some of the biggest consumers. And while some schools are jumping on the sustainability bandwagon (for example, Dickinson College has pledged to be completely carbon neutral by 2020 and has been named America's 3rd Greenest College by Sierra magazine), others are much farther behind.

Furthermore, many school administrators are completely unaware of these buildings' energy use intensity (the amount of electricity, gas, and oil they consume each month per square foot) or how large their carbon footprint is. Schools often shy away from actions that could make them more environmentally conscious--like energy audits--due to the upfront cost of these services. However, in reality, there's a resource schools already have that could help them lower their energy usage: their students.

How can students help schools reduce energy costs and emissions while also learning about sustainability? Through a method called project-based learning.

Project- or problem-based learning (PBL) is an educational model that organizes learning around projects or solving a problem. PBL moves away from traditional single-subject silos and rote memorization and instead focuses more on collaboration, interdisciplinary work, creativity, and real-world problem solving. In PBL, teachers act more as facilitators than instructors and guide students to learn concepts and solve problems on their own rather than telling them how to.

The incorporation of PBL into school curricula represents a major shift in America's education system, a system that has not significantly changed since it was designed in 1893 (the 2015 Sundance Selection film Most Likely to Succeed explores this idea in depth). Back then, students entering the workforce had to possess a set of standardized skills to easily integrate into America's growing industrial economy. Today, technologies can perform many previously human-powered jobs, and the Internet has lessened the need for rote memorization. America's top companies now prefer to hire innovative, collaborative, and problem-solving individuals with PBL experience over those with perfect GPAs and SAT scores. In a 2014 *New York Times* article titled "How to Get a Job at Google," Thomas L. Friedman summarizes Laszlo Bock's approach to hiring at Google, stating, "Beware. Your degree is not a proxy for your ability to do any job. The world only cares about--and pays off on--what you can do with what you know (and doesn't care about how you learned it)."

By infusing PBL with sustainability, educational institutions can work toward reducing their carbon footprint while helping prepare students to build a sustainable economy. Through PBL, educators can give students hands-on learning experience, train them to evaluate environmental issues directly related to the school, and simultaneously track the school's environmental impact. Students can perform energy audits and greenhouse gas accounting and contribute to climate action plans--helping their schools become more environmentally conscious at a lower cost than if these services were outsourced.

My firm has seen the effectiveness of sustainability-infused PBL in action by partnering with several of our education clients, including Broughal Middle School, in a Keystone Energy Efficiency Alliance award-winning program called "LEED for Gingerbread Homes." We wanted to inform the students about LEED and green-building strategies outside of a traditional classroom approach, and Broughal's building was certified LEED Gold.

Students were provided with a limited amount of gingerbread house materials (cookies, candies, icing, and such) and a list of LEED credits that they could attempt in the design of their gingerbread house. Working in teams of five, they were given an afternoon to design and strategically choose which green building strategies they would incorporate into the design. The houses were then judged and scored by green building professionals and community members. By the end of the program, the students had learned what the LEED plaque on their school's wall meant and gained experience working in a team of their peers, and they were visibly abuzz with excitement and accomplishment over what they had just achieved.



The gingerbread LEED houses.

PBL shouldn't stop at the primary school level. In fact, I've seen just how effective college-level PBL is in producing independent, innovative, and successful workers in my own firm, as several of my associates participated in the U.S. Department of Energy's Solar Decathlon with collegiate teams. Sustainability-minded PBL can also be implemented outside of educational institutions. Homes, office buildings, and other campuses encompass our daily lives and contribute significantly to our carbon footprint. These buildings should be used as laboratories for learning and innovation at all ages.

Through project-based learning, our nation can easily become more environmentally aware and prepare for the transition to a carbon-free economy.

Larry Eighmy is the managing principal of The Stone House Group, which helps clients find the overlap between financial and environmental sustainability through energy management, climate action plans, facilities management, and sustainable design services. The company has served more than 250 clients, from Pennsylvania's Lehigh Valley to the Caribbean and the Far East. The company practices what it advocates, as evidenced by its development of a Zero Carbon Neighborhood at the Flat Iron in South Bethlehem, Pennsylvania, where the company is headquartered.

For more from Maria Rodale, visit www.mariasfarmcountrykitchen.com

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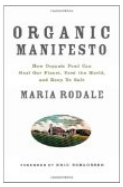

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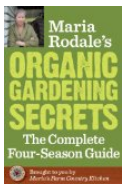

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