



An Introduction of Building Green Schools

Juan Zhang

Applied Technology College, Xi'an Polytechnic University

Xi'an 710048, China

Zhirong Zhang

Applied Technology College, Xi'an Polytechnic University

Xi'an 710048, China

Yu Zheng (Corresponding author)

School of Management, Xi'an Polytechnic University

Xi'an 710048, China

E-mail: zyki2003@163.com

Abstract

Green-schools is an international environmental education program, whole school action for the environment. A school building or facility that creates a healthy environment that is conducive to learning while saving energy, resources and money. Additionally, green schools lessen environmental impacts through responsible approaches to site, reduced demand on municipal infrastructure and recycling during and after construction.

Keywords: Green schools, Benefits, Practice

1. Definition of green schools

Green-schools, known internationally as Eco-Schools, is an international environmental education program, environmental management system and award scheme that promotes and acknowledges long-term, whole school action for the environment.

Unlike a once-off project, it is a long-term program that introduces participants to the concept of an environmental management system. However, Green-Schools is far more than just an environmental management system. It fosters a strong sense of citizenship and leadership among participants that spreads far outside the school into the wider community. It also promotes a strong sense of teamwork among teachers, students and the wider community to reach a common high level goal. It flattens and democratizes school management structures. It brings children into the decision-making process and makes them responsible for their decision and actions. In fact it could be best described as being 'more than the sum of its parts'.

The aim of Green-Schools is to increase students' and participant awareness of environmental issues through classroom studies and to transfer this knowledge into positive environmental action in the school and also in the wider community. Schools that have successfully completed all the elements of the program are awarded the "Green-Flag" in Europe. This award has now become a well-recognized Eco-Label. The award has to be renewed every two years.

Green-Schools is an initiative of, and coordinated on an international level by, FEE (Foundation for Environmental Education). There are currently over 23,000 schools in 43 countries in Europe, Africa, Asia, Oceania and South America taking part in the program.

2. Cause of green schools

2.1 Litter is always caused by people

It is waste in the wrong place which ruins the appearance of our cities, towns, villages and countryside. Litter has many forms and many sources, from a sweet wrapper or cigarette butt thrown on the street to a dumped bag of rubbish, a fly-tipped load of demolition rubble or a dog fouled public park. For example, Local Authorities spend tens of millions of money every year on cleaning the streets in Ireland and trying to prevent people from dumping their waste illegally – an enormous amount of money that could be spent on better things! Estimates indicate that collecting litter is nearly ten times more extensive per ton than collecting domestic waste.

Litter such as broken bottles and cans left lying around public areas can easily result in an injury, while food litter can

attract rats and flies, which spread disease. Litter is also lethal to wildlife, from discarded fishing lines that can maim and kill water birds, to plastic bags mistaken for food and ingested by animals such as cows, sheep, horses and some marine animals.

Recent research by TCD (Gray 2004) on the littering of minor roads in Ireland indicated that the number of litter items deposited on these roads was an average over 3,500 items per kilometer of road per year. One site surveyed had levels of littering of over 10,000 items per kilometer per year! Almost 60% of identifiable litter items were beverage containers and packaging. Furthermore, this study indicated that the roadside litter finally ends up in watercourses and on agricultural land where it causes animal injury and death, crop contamination and machinery damage.

2.2 Litter & Climate Change

It is common knowledge that there is accelerated warming of the earth due to rising concentrations of heat-trapping greenhouse gases in the atmosphere which are caused by human activities. Most products we buy and use cause greenhouse gas emissions in some way, e.g. during production and distribution. They also contribute towards exhausting our natural resources. Packaging takes energy to produce, therefore by cutting down on packaging production, and also through recycling, we can reduce the amount of energy used and limit the release of further greenhouse gases in to the atmosphere.

3. Benefits of green schools

3.1 A healthy, productive learning environment

Far too often our nation's schools are only built to code and we send our children to spend eight hours a day in facilities that just barely meet health and safety standards. This must change. Every child deserves to go to a school with healthy air to breathe and conditions that encourage learning. Green schools are healthy for kids and conducive to their education. Green schools encourage: daylight and views, high indoor air quality, excellent acoustics, thermal comfort. Numerous studies have demonstrated direct benefits to student health and performance. For example, daylight improves performance, good indoor air quality improves health, acoustics increases learning potential, comfortable indoor temperatures increase occupant satisfaction

3.2 Improved teacher retention

Green schools aren't just good for kids. Excellent indoor air quality means improved health for everyone! Teachers deserve healthy spaces for teaching children. Good acoustics in classrooms ensure that teachers can be heard without straining their voices. Studies show that all building occupants benefit from daylight and access to views, and research indicates that teachers are happier when they have the ability to control their environments. And healthy, happy teachers save schools money. Green schools commonly report reductions in teacher absenteeism and teacher turnover. Over the lifetime of a school, that amounts to huge savings.

3.3 Financial savings

If all new school construction and school renovations went green starting today, energy savings alone would total \$20 billion over the next 10 years. Green schools typically cost less than \$3 per square foot more to build, an investment that is paid back within a few years of operation. Over the lifetime of the school, the savings keep adding up. Take the green schools math challenge: if a green school were to save \$100,000 per year, and a typical school facility lasts 42 years. Then over the lifetime of a school building, what could the savings amount to? Do the math: Green schools make sense for students, teachers and the bottom line.

3.4 Hands-on learning

Swami Chinmayananda has said: "Children are not vessels to be filled, but lamps to be lit." Students learn best when they are engaged and inspired. Imagine the learning potential when the school building itself becomes an interactive teaching tool, educating the next generation of sustainable leaders through hands-on learning. More and more green schools have the green school experience. For example, high school students learn about alternative energy from the solar panels on their roof, middle school students studying ecosystems in their constructed wetland, and kindergarteners growing the organic vegetables they eat for lunch. The school building is no longer a vessel filled with students, teachers and books, but itself an opportunity for experiential learning and discovery.

3.5 Environmentally friendly

Green schools do more good by doing less bad; they save more energy and use less water than traditional school buildings. Additionally, green schools lessen environmental impacts through responsible approaches to site, reduced demand on municipal infrastructure and recycling during and after construction. Like other green buildings, green schools decrease our reliance on fossil fuels, thus decreasing carbon dioxide emissions and other forms of harmful pollution. Green schools can help turn back the clock on global warming, improving the environmental outlook for the children who will one day be faced with the challenge of finding resolutions to this problem.

4. How to go green schools

4.1 School teachers

School teachers are one of the first lines of defense in the environmental movement. In a few short years, the upcoming generation will decide the fate of this planet. And when it comes to how to teach children science, math, and geography, teachers are the best at it. The interdisciplinary skills they learn today will be the planet-saving skills they enlist tomorrow. Now, we know that's a lot to bear on teachers' shoulders, so we've put together a guide that will help teachers in the classroom—and outside it, too.

Teachers' mission is to help children develop a connection to the environment, through both learning and experience. We know that most of teachers went back-to-school in September, but we have it on good intelligence that some teachers may have spent their summers traveling and golfing, rather than working out lesson plans. We certainly don't take issue with that, and with the go green initiative's annual Earth Summit—a national conference focused on going green in the classroom—taking place in Syracuse later this month, it's a perfect time to start planning some eco-activities for students.

From hands-on projects to personal responsibility, the tips, projects, and concepts outlined in this guide take a community-based approach to learning about environmental issues. Teachers may not be able to implement a school-wide recycling or composting program, but teachers can teach the principles of zero-waste within the domain of classroom. And while teachers may not be able to get the janitorial staff to swap out for greener cleaners, they can show kids how to make their own eco-friendly cleaners from vinegar and water. Greening school doesn't have to be about getting grants for solar panels and building a rain-water collection system. Those things are great, but it can also be as simple as opening the eyes of a child to the native plants just beyond the playground, or helping a student calculate the carbon footprint of his trip to school. Whether teachers are in an urban, suburban, exurban, or rural location, and no matter if they are a public or private school employee, they can choose this call to arms. Regardless of budget or setting, there's a lot every teacher can do to inspire his students to make the world a little greener.

4.2 Top green school teacher tips

Instilling a sense of connectedness to nature and the environment—be it a forest, field, or urban landscape—is essential to helping fledgling Tree Huggers care about the world around them. To teach students about global issues such as climate change and endangered, look to local issues such as recycling, storm-water runoff, or air pollution. Making it personal and connecting it to community makes it real.

Carbon and environmental footprint calculators help us see how much impact we have on the world around us. If everyone in the world lived like we did, we'd need five planets worth of resources to sustain life as we need know it! Using these online tools as fun games can really drive home the point of what kind of impact each of us has. Learn about environmental footprint and check out some of our favorite carbon footprint calculators. Then create a plan to reduce your group footprint.

School-wide recycling is a brilliant move, but implementing can be tougher than teaching long division to an eight-year-old. If a school isn't recycling at-large, start a classroom-wide policy of "zero-waste". Set up recycling bins, audit how much rubbish is created in a day. Sorting trash will help kids understand how much waste they are creating in a day, and where it's all coming from. Challenge kids to pack zero-waste lunches by using reusable bottles, containers, and satchels, rather than disposable ones. Competing with another classroom to see who can reduce their waste output most is a great way to create healthy competition and less waste.

Whether teachers are in the city or the country, any classroom can bring plants into the mix. It's easy to build a self-watering plant container and get kids growing right in the classroom. They can also bring experts in the classroom, too. Field trips can get complicated and expensive; often nature centers, recycling facilities, and so on are willing to send volunteers or staff members to schools for in-house demonstrations. Explain that bringing one person to many means cutting down on carbon emissions due to transportation.

Work with community to identify group goals. From easy, inexpensive changes such as switching to greener cleaning supplies and swapping out light bulbs to major changes such building energy-efficient, green school building or getting local farm-fresh food into cafeterias, green changes often happen due to grassroots efforts. The group's ultimate goal is to unite parent-teacher associations across the country in an effort to help bring environmental programs into the school via parents, while giving teachers more time to focus on using those programs in the classroom, rather than having to organize them on their own.

4.3 getting techie

4.3.1 LEED-certified green school buildings

According to the US Green Building Council, LEED-certified and environmentally constructed schools cost less to operate—on average, up to 100,000 per year less. Studies show that carefully planned acoustics and abundant daylight

can significantly improve students' capability to learn—and improve the well being of students and teachers. Cleaner indoor air means far fewer sick days. Plus, often, innovative design provides a hands-on learning opportunities.

4.3.2 How green building works

“Green building” and “sustainable development” are the hottest terms in construction right now, but what do they mean, exactly? According to the Environmental Protection Agency Web site, green building is “the practice of creating healthier and more resource-efficient models of construction, renovation, operation, maintenance and demolition”. Proponents say that green building is not only environmentally friendly, but also healthier and more cost-efficient.

4.3.3 Project based learning

Project based learning, according the website of the same name, is a method that takes a “comprehensive approach to instruction.” Students, who are often more engaged when learning hands-on, participate in various projects, using interdisciplinary skills to accomplish tasks and goals. The Project Based Learning Checklist website offers customizable project checklists for written reports, multimedia projects, oral presentations, and science projects.

4.3.4 Green school maintenance

Simple maintenance and facilities choices, such as using the Eco-Cube can save thousands of gallons of water each year because they allow water in urinals to be turned off, while letting naturally occurring microbes do the work instead. That saves both water and cash. Having a janitorial staff switch to greener cleaners—non-toxic commercial cleaners are increasingly available—can significantly help detoxify indoor environments by decreasing amounts of volatile organic compounds, leading to fewer sick days for teacher and kids, as well as increased productivity.

5. Green Schools practice in Ireland

Green-Schools in Ireland is operated and coordinated by the Environmental Education Unit of An Taisce, in partnership with Local Authorities throughout the country, is supported by the Department of Environment, Heritage and Local Government, the Department of Transport and is sponsored by Repak, Coca-Cola Bottlers Ireland Ltd., ESB Independent Energy and the Wrigley Company Ltd.

Over 3,000 primary, secondary and special schools in Ireland are currently taking part in the program and 1,460 have been awarded the Green Flag. The Irish Green-Schools program is one of the most successful within the international network. One of the main factors in the success of the Irish Green-Schools program is the partnership between the Environmental Education Unit of An Taisce and Local Authorities i.e. the financial and time contribution of the Local Authorities to the program. Each of the Local Authorities has an Environmental Education Officer (EEO). These officers provide the invaluable on the ground support to schools undertaking the program.

Green-Schools is also undertaking a pilot with East Cork Area Development (ECAD), which is funded under the National Development Plan 2000-2006, with schools on Great Island, Cobh, Co. Cork. The pilot involves the development of the role of a Local Area Green-Schools coordinator to work with schools and the wider community on Great Island.

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