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Green libraries are more than just buildings

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Abstract

Many colleges and universities across the United States have adopted sustainability in their curriculum and operations. Academic libraries need to support the mission of their university and therefore must also play their part in sustainability education and operations. The library and information science literature makes it appear that the hallmark of a “green library” is an environmentally friendly building. There are very few academic libraries in the United States that are LEED certified. The author argues that a green library is something more than just the architecture. By using example initiatives and providing recommendations for green library operations, it can be determined that a green library does not necessarily entail a green building, but it does involve a green mission.

Defining green libraries

The phrase “green library” is prevalent in library circles and seems to pervade the library and information science literature; for examples, see Antonelli (2008) and Brown (2003). Although the wealth of literature on how academic libraries contribute to sustainability, the phrase “green library” colloquially refers to a library building that is certified as an environmentally friendly building. This trend implies that a green building is a necessary qualification for a library to be considered a “green library.” According to the Association for the Advancement of Sustainability in Higher Education (AASHE), as of 2013, there are thirteen LEED certified academic libraries in the United States (AASHE, 2013), a U.S. Green Building Council (USGBC) certification that stands for Leadership in Energy and Environmental Design. The certification serves as a way to “provide building owners and operators with a framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions” (USGBC, n.d.). The exclusivity of the term “green library” is an unfortunate side effect of the allure of a new and environmentally friendly building. A likely unintentional implication, it is still harmful to those libraries that are serious about sustainability and are working to incorporate it into their mission despite the building they are housed in. A green library is not an exclusive club for those fortunate enough to have LEED certification. The author proposes that we shift the trend and use the term “green library” to refer to any library that promotes sustainability through education, operations, and outreach.

In their comprehensive literature review, Jankowska and Marcum (2010) identify four major areas of environmental and sustainable issues in the library literature: “(1) Sustainability of scholarship and collections; (2) Green library operations and practices; (3) Green library buildings; and (4) Measuring and improving sustainability” (p. 161). I posit that a true green library is one that promotes sustainability by leading by example and attempts to incorporate sustainability into all aspects of academic librarianship. By engaging in these activities, librarians can support an ethical and academic mission of working within a sustainable lifestyle that will fully envelope their campus and beyond.

The importance of learning about sustainability

Sustainability is “meeting the needs of present generations without compromising the ability of future generations to meet their needs” (United Nations, 1987). Educating students about the importance of sustainability can be found in the curriculum and operations of many colleges and universities across the United States (National Council for Science and the Environment, 2003; Wright, 2002). As of this writing, 665 College and University presidents have signed the *American College and University Presidents’ Climate Commitment* (President’s Climate Commitment, 2012). The commitment states that, “colleges and universities must exercise leadership in their communities and throughout society by modeling ways to minimize global warming emissions, and by providing the knowledge and the educated graduates to achieve climate neutrality” (“Commitment Text,” n.d.). If a university’s purpose is to teach young adults to be informed and engaged citizens, then sustainability needs to be included in every university’s mission and curriculum, so today’s students can meet the challenges they will face in their lifetimes (Moore, 2005).

In order to address sustainability and sustainable issues on campus, liberal arts colleges such as The University of Scranton and Middlebury College, as well as research universities, that include the University of Maryland, Penn State University, and the University of Illinois at Urbana-Champaign, have sustainability workshops (“Workshop on sustainability,” n.d.; “Sustainability in the curriculum,” 2012; “Chesapeake project: Overview,” n.d.; “Teaching sustainability across the curriculum series,” 2012; “The 2012 teaching sustainability workshop...,” 2012). These workshops provide training for faculty interested in supporting Education for Sustainable Development (ESD) and Environmental Education (EE) by sharing useful information on how to incorporate sustainability into various courses (UNESCO, 2004; Tilbury, 1995). According to Barlett and Rappaport (2009), workshops like these prove invaluable for enhancing teaching, learning, and scholarship. At these multiday workshops, faculty learn about sustainability, hear about the various sustainability initiatives on their campuses, discuss with their colleagues from other departments how sustainability fits into their respective fields, and brainstorm ways to incorporate sustainability into their courses. These workshops help to dispel any stigma by relegating sustainability to the domain of the environmental scientists, encouraging faculty from English and Philosophy to Business and Criminal Justice to address sustainability as well (Barlett & Chase, 2004, p. 9-12.). If it is true that all academic departments have a part to play in sustainability education, then the library must also find ways to contribute. In order to make “green libraries” refer to the missions and operations of libraries rather than to the architecture, librarians need to take a leadership role in promoting sustainability. To do this, librarians will need to take advantage of the resources their campus has to offer, make meaningful connections with other like-minded individuals and departments, strive to educate students, and publicize the successes of their sustainability efforts.

It is not immediately obvious how a workshop geared toward implementing sustainability into courses would be useful to librarians. If a librarian never intends to teach such a course, there are various reasons why librarians should attend these faculty seminars:

1. All participants will receive an introduction to sustainability.

Presumably the goal of sustainability education is to disseminate knowledge and information on sustainability. This in and of itself is important because without a basic understanding of sustainability, it is unreasonable to expect someone to lead a sustainable lifestyle. Often these workshops are labeled as being reserved exclusively for teaching faculty. This tendency to

focus sustainability workshops only for teachers so they can incorporate sustainability into their courses, essentially serves as a barrier to non-teachers who want to support the cause. From the information literacy perspective, librarians, whether faculty or academic support, aid students in their studies. If the university believes that sustainability can fit into all disciplines, librarians must be knowledgeable about sustainability so they are able to help students perform sustainability research. The obvious objection to the latter case would be that not all librarians directly interact with students. Librarians outside of public services must also be sustainability literate if they are going to support education and scholarship. Cataloging, acquisitions, electronic resources, and collection development librarians are essential to providing the necessary resources to support student and faculty research and teaching. It is important for these librarians to also know sustainability, so they are capable of making judgment calls on which sustainability resources are needed on campus.

2. Librarians will have an opportunity to meet faculty and students who are also interested in sustainability.

Meeting a faculty member who is interested in sustainability is a prime opportunity to discuss the possibility of a collaborative project. This is one way a librarian can become more involved in the curriculum and strengthen ties between the library and academic departments. Depending on the type of collaborative project, the library, librarians, students, faculty, and the university as a whole could benefit in a number of ways. As an example, when a marketing professor assigns an in-depth sustainability project, the library has an opportunity to play the role of “client.” Marketing majors will have insight into the minds of their peers and could design effective ways to energize the library’s sustainability outreach efforts. Possible marketing opportunities include the use of duplex printing, loaning library iPads for students storing class readings rather than printing, and, if your library has a coffee bar, offering the same discount most coffee shops provide when bringing a reusable mug. In addition, marketing majors might help the library perform studies on student behaviors and perceptions about library sustainability. Through student-conducted surveys, librarians can gather data to better understand and differentiate between student research needs versus their unsustainable habits. With this information, librarians can create better policies and attempt to motivate students to adopt sustainable practices, such as duplex printing, consistent recycling, and bringing a reusable mug and water bottle to campus every day. If a media or communications professor has students filming and editing short videos, have one option be a Public Service Announcement (PSA) addressing sustainability in the library. Both examples could help spread aspects of sustainability, share information on sustainability issues within the library, and inform students how they can play a part in addressing these concerns. By displaying the finished products in the library, students could see their friends’ pictures, videos, slogans, or ideas posted in the building. This would likely bring a friendly face to the library and ultimately make the library more welcoming to students.

3. Librarians who attend sustainability workshops will be made aware of the campus sustainability initiatives.

Again this is an excellent opportunity for a librarian to start a collaborative project with an individual or office on campus. It is not uncommon for a librarian to work with offices other than academic departments on campus; this type of collaboration would not be out of the ordinary. The library and the department of information technology can work together to test green technology programs in the library, such as thin client computer labs that uses a fraction of the energy of traditional PCs (Vereecken et al., 2009). The library and the office of student and staff wellness might partner to institute a “walk to campus” program. The university’s parking

authority may help to coordinate a carpool schedule for interested library employees. In addition, a library dean may make a connection with the university's architect or engineer and advocate for the library to be first on the list for any green improvements that the university may have in mind. By inviting the university engineer to the library to discuss energy saving measures, librarians may find a campus partner willing to subsidize building upgrades. Most university engineers are most likely aware of the green literature and are brainstorming ways to reduce the high-energy use bills on campus. Not all green upgrades need to be as expensive as solar panels, windmills, or geothermal heating and cooling. A green upgrade could be as simple as replacing all of the library's light bulbs with energy efficient options, installing motion sensors so lights go off in unoccupied areas, performing regular maintenance on HVAC systems, weighing the cost of upgrading to high efficiency systems versus paying higher monthly bills with low efficiency systems, or as simple as performing a study on building temperature throughout the day to better program the thermostat.

If your campus provides sustainability workshops, the author strongly recommends that you attend for the above reasons. If your campus provides these workshops, and has not thought to include librarians, take the above list to the organizers and propose inclusion. If there is a lack of interest, an idea might be to explore the possibility of engaging in your own initiated sustainability workshop, inviting your colleagues, as well as staff from other university departments, and librarians from local colleges and universities.

Incorporating sustainability into librarianship

One of the major functions of a library is to support research on campus; an area that must be addressed is if the collection supports the various campus sustainability initiatives. In order to effectively support sustainability, there is a need for a core collection of sustainability books and a strong web presence (Connell, 2010; Applin, 2009; "Sustainability," n.d.). By growing the library's sustainability collection and organizing online sustainability resources, librarians are enabling faculty research in this area and enhancing students' educational potential.

Librarians do not have the classroom exposure that professors have; this should not dissuade librarians from fulfilling their university's academic mission. When a librarian has an opportunity to talk to students in the classroom, it often comes in the form of a one-time information literacy session. In this short period of time, librarians could integrate sustainability into their lectures by using "sustainability" (or related terminology) as example search terms. This will call attention to sustainability in an area students may not expect to hear the term. In addition, hearing "sustainability" from a variety of university figures will make it implicitly known that sustainability is something that, as college students, need to know (Stark, 2012, p. 3). Engaging in this way, librarians will play a small but important role in a campus wide effort, showing students that sustainability is linked to all disciplines.

Simply mentioning sustainability is not enough; introductory sessions that are often taught to first year students are a prime opportunity to delve more in depth about the unsustainable student practices undoubtedly witnessed in the library. Take time to discuss wasteful printing, purchasing disposable water bottles instead of having a reusable bottle, and commingling recycling and trash in one receptacle. By reaching students, librarians could essentially curb bad habits before they manifest. In effect, this will introduce new students to the library and its resources, while teaching them about the library's sustainability culture and how their behavior in the building has a larger impact on the environment than they may have considered

Librarians need to be creative in how they incorporate sustainability into campus life. By reaching out to academic departments and faculty governing bodies, librarians can take a more active role in affecting academics on campus, lending their support for including sustainability in the curriculum. If a campus has embraced sustainability initiatives, the campus champions would more than likely welcome like-minded individuals who are in support of the cause. It might be more of a struggle for an individual librarian to enact change in university academics, but it is not impossible to make connections with faculty who are in a better position to enact change.

Using the library as a teaching tool

Librarians have a unique ability to affect sustainability on campus as they have control over a heavily used campus building. Orr (2002) argues that the campus in and of itself is a powerful teaching tool (p. 127-9). The university library, the heart of most university campuses, is an integral component to teach sustainability. Because university libraries are often vibrant hubs where students are spending hours studying, simply passing through, socializing with friends, or just using the location as a central meeting point, the library can model sustainable practices and in essence lead by example.

Employ alternative education techniques in the building to raise awareness and promote more sustainable lifestyles. Alternative education techniques include informational fliers on how to print multiple PowerPoint slides per page, what types of plastics can be recycled on campus, and information about water bottle waste and public transportation. Even though a 50 minute sustainability lecture would provide students with a better understanding of the concept, it will only reach a limited number of students. Educational fliers in the library or PSAs on library LED screens can reach more students than any single course can. These alternative education techniques are not capable of providing in-depth information about sustainability topics, but they accommodate for this in their capability to reach more individuals, being practical, and, if creative enough, being memorable. The students reached by these measures may not walk away feeling like experts on sustainability, but their sensibilities could be opened to a sustainable issue in the library or on campus, such as how many plastic bottles are sent to landfills each year and how they could do their part by purchasing a reusable water bottle.

By spending money to replace printers in the building with duplex models and having “print double sided” set as the default, the library will support sustainability and save money on paper (Cunningham, Feder, & Muise, 2010). Consider reaching out to faculty, alerting them to this upgrade and urging them to reassure students that handing in an assignment with print on both sides is acceptable. If not acceptable to the professor, then urge them to express it to their class and see a librarian if they need the printer set up for to single sided printing. Lastly, consider implementing a printing “allowance” so students print wisely instead of indiscriminately printing.

In 2011, the University of Vermont chose not to renew their contract with Coca Cola in order to stop the sale of plastic water bottles on their campus. Considering that Coca Cola is reported to have contributed \$500,000 a year to UVM programs, this show a commitment to sustainability (Carlson, 2012). Librarians do not have direct control over these types of campus contracts, but encouraging the use of reusable water bottles is certainly within the library’s purview. Consider installing a water bottle purification unit in the library, preferably one in a high traffic area. Even though municipal water is as clean as or cleaner than most bottled waters, there is still the negative stigma that a purification system seems to alleviate (Mackey, 2004). To increase the impact of the water bottle filling station, sell BPA-Free reusable bottles at a reasonable rate. Since the purpose of these bottles is to promote the importance of living a more sustainable

lifestyle, they should ideally be sold as not-for-profit items. The bottles can also be used as giveaways for contests or for other promotional events.

If a library has poorly labeled recycling bins, the users experience a general lack of fastidiousness among students and the likely unintentional intermingling of trash, paper, and bottles (Duffy & Verges, 2009). Librarians might encourage recycling, without actively policing student behaviors, by having clearly labeled, color coded bins for paper, plastic, and trash. Arguably, the most important feature for these receptacles is to have specially designed slots so that a person has to consciously place an item into a specific bin. Without a wide open receptacle to just *mindlessly* toss both trash and recyclable material indiscriminately, students and other library users are forced to consciously *decide* what bin they will deposit their materials in. Duffy and Verges (2009) performed a similar study where they found student recycling increased with the implementation of slotted bins.

Not all recycling plants are capable of handling all types of plastics, perhaps the plant located near the library can only handle plastic bottles marked 1 (PET) or 2 (PE-HD). Regardless of what plastic types the local recycling plant can handle, it is important to bring special attention to this fact. An informal observation will show that plastic recycling bins are often filled with types of plastic other than 1 (PET) and 2 (PE-HD). As an example, the disposable plastic cups for iced coffee beverages are usually made out of type 5 (PP) plastic and could be frequently seen in recycling bins. Though this is likely done in the spirit of sustainability, if the recycling plant cannot handle the plastic, then this good intention will actually complicate the recycling process, forcing an additional sorting step to be taken at the recycling plant. By placing signage and informational fliers above recycling bins, librarians could passively educate users on where specific items should be deposited and give them practical information that students can take home with them.

As some cities are better equipped for sorting trash and recyclables or have the capability to recycle more types of plastic, it is important to point out the proper name of the area or governing body that provides the recycling on campus. Students serious about sustainability will seek out the relevant recycling information for their hometowns and possibly share this information with their families. The reach of the library might extend out of the area and impact the lives of those who may have never entered the building or attended the university.

Libraries need to be dedicated to recycling educational materials, which are no longer a part of the collection, in the most sustainable way possible. Recycling is an admirable and important process, but it is not enough to combat environmental issues. In reality, everyone should strive to reduce and conserve our resources by eliminating unnecessary items and by reusing materials as much as possible before recycling (Makower, 1995). When discarding weeded materials, libraries should not make recycling their first option. Rather, by choosing to relocate deaccessioned resources, librarians extend the lifespan of materials and push back the inevitable loss of energy that occurs during the recycling process (Tyskeng & Finnveden, 2010; Counsell & Allwood, 2007; Goldbeck & Goldbeck, 1995, p. xiv-xxi). By attempting to relocate materials to other libraries, departmental collections, or even to individuals, weeded items such as books, VHS tapes, DVDs, bound journals, and microfilm find a new home where they are in demand. Relocation expends no additional energy in the process other than the environmental cost of transporting the items, which would occur in the recycling process as well (Goldbeck & Goldbeck, 1995, p. xv -xvi). Some materials not in demand and cannot be relocated to other libraries may be suitable for the library's annual book sale. After all other avenues are exhausted; the library should recycle its weeded materials.

Sustainable operations and outreach

To further promote sustainability, a library might reach out to the local community and to members of the campus who might not come to the library to do research. If a library has the space, then perhaps host an environmental art show with submissions from students, staff, and faculty. By making a call for environmentally themed artwork, including pottery, paintings, photography, fashion, poetry, sculptures, and repurposed goods, librarians help to bring a more lighthearted and fun twist on an otherwise serious topic. A similar art show was done at the University of Scranton and was met with success (Aulisio, 2011). Not only do the campus artists have a creative outlet to display their work, the exhibit allows for another form of peer education. Students will be able to see what their peers care about and could become interested in learning more about the topic. By making the event free and open to the public, librarians can show the university's commitment to sustainable practices, help the community put a face to the university, and also let them see why the university is a valuable resource. Members of the public, friends, and family will be able to discuss sustainability and the artwork with the artists. This will help to advance the conversation on sustainability throughout the university and beyond.

Though implementing green practices and leading by example will attract some student attention, it is also important to publicize achievements and green practices to students, staff, faculty, and campus administrators in order to live up to the educational aspect of sustainability. Reaching students is obviously the goal of education, but it is also important to reach out to other individuals in various roles on campus. When performing outreach, the library is effectively promoting sustainability through peer-to-peer and mentor-to-mentee education. The idea is simple: the more people that know about the sustainability initiatives in the library, the more likely it is that an individual will mention it to another person. If someone speaks of the sustainability efforts positively, then the library's sustainable practices will reach someone new.

Every little bit makes a difference, but enacting real change in terms of sustainability will require larger buy-in across the university. Most librarians may not have the ability to enact government policy, change big business practices, or even fix the recycling habits of their local community. However, librarians can make a difference within their profession by contributing to the green library scholarship, the unsung hero of library sustainability efforts. The successes of libraries need to be widely disseminated through publications in scholarly journals, newsletters, and conference presentations. As these successes permeate the professional literature, a dynamic best practices guide for "green libraries" can finally be created. The best practices guide should be the work of an ALA or ACRL committee, such as the Task Force on the Environment, to make sure the proposed best practices are agreed upon by a representative group of librarians rather than by any individual librarian. This best practices guide will need to be dynamic, as more case studies are added to the literature, tried and true methods will be further solidified, but also new and innovative ideas should be included in updated editions of the best practices guide. Ultimately, the guide needs to be dynamic because a "green library" is not achieved after completing tasks x, y, and z, rather a green library is a library that continually implements new sustainable practices and educational aspects into its operations. In other words, the work of a green library is never really finished.

Conclusion

Just because there might not be enough funds to build a new LEED certified building, and because librarians do not have the classroom time that instructors have, does not mean that the library cannot be a sustainability leader on campus. Until librarians begin implementing

sustainable practices, promoting their successes, and reaching out to students, staff, faculty, and the local community, they will only be partially fulfilling the sustainability aspect that should already be an integral component of their university. The term “green libraries” should refer to those libraries that are actively working to promote sustainability, not to the very few LEED certified libraries that exist. Simply through education, leading by example, and outreach librarians can make their library a “green library.”

References

- Antonelli, M. (2008). The Green library movement: an overview and beyond. *Electronic Green Journal*, 1(27), 1-11.
- Applin, M.B. (2009). Building a sustainability collection: A selected bibliography. *Reference Services Review*, 37(3), 313-325.
- Association for the Advancement of Sustainability in Higher Education. (2013). *Green libraries on campus*. Retrieved from <http://www.aashe.org/resources/green-libraries-campus>
- Aulisio, G.J. (2011, Fall). Library green team's first year in review. *Information Update*. Retrieved from <http://academic.scranton.edu/department/wml/ARCHIVED/features/fall11s-1.html>.
- Barlett, P.F., & Chase, G.W. (2004). *Sustainability on campus*. Cambridge, MA: MIT Press.
- Barlett, P.F. & Rappaport, A. (2009). Long-term impacts of faculty development programs: The experience of Teli and Piedmont. *College Teaching*, 57(2), 73-82.
- Brown, B. (2003). The New green standard. *Library Journal*, 128(20), 61-64.
- Carlson, S. (2012, February) U. of Vermont will stop bottled-water sales. *The Chronicle of Higher Education*. Retrieved from <http://chronicle.com/blogs/buildings/u-of-vermont-will-stop-bottled-water-sales/30958>.
- Chesapeake project: Overview*. (n.d.) Retrieved from The University of Maryland, SustainableUMD website: http://www.sustainability.umd.edu/content/curriculum/chesapeake_project.php.
- Commitment Text*. (n.d.). Retrieved from American College and University President's Climate Commitment website: <http://www.presidentsclimatecommitment.org/about/commitment>
- Connell, V. (2010). Greening the library: Collection development decisions, *Endnotes*, 1(1), 1–12.
- Counsell, T.A.M. & Allwood, J.M. (2007). A review of technology options for reducing the environmental impact of office paper. *Resources, Conservation, and Recycling*, 49(4), 340-352.
- Cunningham, H. Feder, E., & Muise, I. (2010). Paper Cuts Don't Hurt at the Gerstein Library. *Computers in Libraries*, 30(2), 6-10.

- Duffy, S., & Verges, M. (2009). It matters a hole lot. *Environment and Behavior*, 41(5), 741-749.
- Goldbeck, N., & Goldbeck, D. (1995). The case for reuse. In N. Goldbeck & D. Goldbeck (Eds.). *Choose to reuse: An encyclopedia of services, business, tools & charitable programs that facilitate reuse*. (pp. xiv – xxi). Woodstock, NY: Ceres Press.
- Jankowska, M.A., & Marcum, J.W. (2010). Sustainability challenge for academic libraries: Planning for the future. *College & Research Libraries*, 71(2), 160-70.
- Mackey, E.D. (2004). *Consumer perceptions of tap water, bottled water, and filtration devices*. Denver, CO: AWWA Research Foundation.
- Makower, J. (1995). *Introduction* In N. Goldbeck & D. Goldbeck (Eds.). *Choose to reuse: An encyclopedia of services, business, tools & charitable programs that facilitate reuse*. (pp. xi – xiii). Woodstock, NY: Ceres Press.
- Moore, J. (2005). Seven recommendations for creating sustainability education at the university level: A guide for change agents. *International Journal of Sustainability in Higher Education*, 6(4), 326-339.
- National Council for Science and the Environment. (2003). Recommendation for education for a sustainable and secure future: A report of the third national conference on science, *Policy and the Environment*, 18(30) Retrieved from <http://www.cnie.org/NCSEconference/2003conference/2003report.pdf>
- Orr, D.W. (2002). *The Nature of design: Ecology, culture, and human intention*. Oxford: Oxford University Press.
- Presidents' Climate Commitment. (2012). Retrieved from American College and University President's Climate Commitment website: <http://www.presidentsclimatecommitment.org/>
- Stark, M. (2012). Information in place: Integrating sustainability into information literacy instruction. *Electronic Green Journal*, 1(32), 1-16.
- Sustainability. (n.d.) Retrieved October 7, 2012, from <http://libwiki.scranton.edu/mediawiki/index.php/Sustainability>
- Sustainability in the curriculum. (2010, December 3). *MiddPoints*, 29(8), 2,5. Retrieved from <http://www.middlebury.edu/sustainability/tools/courses>
- Teaching sustainability across the curriculum series*. (2012) Retrieved from Penn State University, Schreyer Institute for Teaching Excellence website: <http://www.schreyerinstitution.psu.edu/Sustainability/>
- The 2012 teaching sustainability workshop (formerly prairie project) infusing sustainability across the Illinois curriculum through an interactive retreat and mutual learning program*. (2012). Retrieved from University of Illinois, Office of Sustainability website: <http://sustainability.illinois.edu/teachingworkshop.html>
- Tilbury, D. (1995). Environmental education for sustainability: Defining the new focus of environmental education in the 1990s. *Environmental Education Research*, 1, 195–212.

Tyskeng, S. & Finnveden, G.. (2010), Comparing energy use and environmental impacts of recycling and waste incineration. *Journal of Environmental Engineering*, 136(8), 744-748.

United Nations. (1987). *World Commission on Environment and Development's report: Our common future*. Retrieved from <http://www.un-documents.net/wced-ocf.htm>

United Nations Education Scientific and Cultural Organisation (UNESCO). (2004). *United Nations decade of education for sustainable development 2005–2014: Draft international implementation scheme*. Paris, France: UNESCO.

U.S. Green Building Council (USGBC). (n.d.). *LEED is an internationally recognized green building program*. Retrieved from <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988>

Vereecken, W., Deboosere, L., Simoens, P., Vermeulen, B., Colle, D., Develder, C., ... Demeester, P.. Ghent University. (2009, September 8). *Energy efficiency in thin client solutions* [Presentation Slides]. Retrieved from http://www.greengrids.org/presentations/03_vereecken.pdf

Workshop on sustainability. (n.d.) Retrieved from The University of Scranton website: <http://matrix.scranton.edu/sustainability/workshop.shtml>

Wright, T.S.A. (2002). Definitions and frameworks for environmental sustainability in higher education. *Higher Education Policy*, 15(2), 105-20.

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