

Implementing Sustainability Into Post-Secondary Curricula

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Abstract:

“Empowering youth to create a sustainable future is critical in the process of preserving the planet. Students are our future lawmakers, parents, consumers, ambassadors, and educators, and we can all make a difference in the here and now by making sustainability a priority” (“What Is the Role,” n.d.). The students attending post-secondary institutions will be our nation’s — and our world’s — leaders in the near future. And in the midst of our world’s environmental struggles, our future leaders must enter the workforce with a strong background in sustainability. The post-secondary institutions of the world are thereby responsible for the education of their students in sustainability, and for instilling environmental values into them (Blewitt, 2009). Institutions are taking strides to improve their level of sustainability by participating in Sustainable Holistic Planning Systems, or SHPS. SHPS are generally applied to communities and jurisdictions, and they allow them to set goals that lead towards sustainability. From there they can receive awards, certifications, and build their reputation in the environmental community (Backus, 2019). *The Association for the Advancement of Sustainability in Higher Education’s Sustainability Tracking, Assessment, and Rating System (AASHE STARS)* is a SHPS designed specifically for post-secondary institutions. This project examines the effectiveness of *AASHE STARS* in regards to improving sustainability education at post-secondary institutions, through a study of scholarly literature and case studies. It also provides suggestions for further steps these institutions can take to ameliorate their sustainability curriculum, including implementing sustainability into their core curriculum requirements.

Introduction:

Students attending post-secondary institutions have been affiliated with environmentalism throughout history. With the beginning of the modern environmental movement in the 1960s and 70s, after the publication of Rachel Carson’s *Silent Spring*, students at post-secondary institutions took on the role of educating Americans about environmental issues. Students at the University of Michigan helped to organize the 1970 ENACT Teach-In, and environmental clubs and activists were, and are, present on campuses across the country (“II. ENACT Teach-In,” n.d.). Today, the institutions themselves are playing a much bigger role in the sustainability effort. Clarkson University, among many other institutions, participates in programs like the Green Building Council’s *LEED* buildings initiative. *LEED* stands for Leadership in Energy and Environmental Design. Institutions are also beginning to participate in SHPS, such as *AASHE STARS*, in order to improve their level of sustainability in a more well-rounded way. These efforts, including having *LEED* certified buildings, environmental clubs, and sustainability themed events and policies, create a sustainable environment for students to learn in. But, are these students *learning* about sustainability, and the significance of their university’s sustainability efforts? Many students outside of environmental and sustainability majors may not be — hence the need for implementing sustainability education into, and throughout, post-secondary curricula.

Students not only need to be exposed to the concept of sustainability while on campus, but they need to learn about it in the classroom in order to understand its implications. We need them to understand their role in preserving our environment, and our way of life. We need them to

understand that the earth itself is tough. It's a planet. It'll survive. But the ecosystems living on it, the plants, the animals — the people — are what need saving. *"Education communicates that people are part of nature, that nature has limits, and that communities are responsible for protecting and building natural assets"* ("Sustainability," n.d.). And so, not just environmental scientists are responsible for knowing about, and caring about, environmental sustainability. We need lawyers, engineers, business owners, construction managers, to be aware of — and to understand — how they play a role in creating a sustainable present and future. Therefore, sustainability must be implemented throughout a school's pedagogy and curriculum. There are many ways that post-secondary institutions can do this, and this project explores some of those options.

Schools can adopt SHPS such as *STARS*, which encourages schools to increase the amount of sustainability related courses they offer. Beyond that, schools can integrate sustainability concepts into general education classes in the humanities and STEM. English and history classes can discuss Rachel Carson and the Environmental Movement, and business students can learn about sustainable business practices. Another option schools have would be to require all students to take a certain number of sustainability courses in order to graduate. This way, all students would leave with at least a basic understanding of the role they play in the sustainability effort.

Schools need to create opportunities for sustainability values to be instilled in all students, not just environmental majors. And if students spend time immersed in environmental education for four years of their young adult life, there may be a greater chance that they will continue to pay attention to, and want to learn about, environmental issues throughout their lives.

This project was a broad exploratory study of the effectiveness of *AASHE STARS* in regards to improving sustainability education at the post-secondary level, as well as steps institutions can take beyond adopting *STARS*. The suggestions presented will need to be tested, and their impacts on an institution, and its student body, will need to be studied. I hope that my research will help to bring light to the huge role that post-secondary institutions play in our global economy, and how they impact our society's sustainability.

Background:

"...universities are, uniquely, purveyors of new thought such as sustainability. Like other organizations, universities have their own functional behavior to change, such as reducing their carbon footprint, but they also teach sustainability, thus broadly influencing society...Therefore, in theory, they must adopt sustainability into curricula and other progressive knowledge to maintain their legitimacy as places of higher education; they are expected to be thought leaders" (Lange, 2012).

Post-secondary institutions play a key role in our world's sustainability efforts because they are educating our future leaders, and because they have the ability to influence our society. Universities' capabilities to release new research findings, from their legitimized and respected platform, allow them to educate not only their students, but the public as well. Therefore,

sustainability research and findings presented to the public by higher education have the potential to change the way our society thinks, and acts, in our pursuit to solve environmental issues.

“Higher education institutions play three main roles that can help further sustainability in local and global communities. Those roles are: (a) A teaching and research environment, (b) A community member, and (c) An economic force. All of these roles are integral in creating the future leaders and decision makers that can continue to advance sustainability in society” (Murphy, 2009).

By creating opportunities for students and faculty in research, internships, and in the classroom, they can inform the public of environmental issues and solutions, while also gaining sustainability values, and a sense of environmental responsibility (Ibid).

One way for post-secondary institutions to develop a plan for creating these opportunities is to participate in a Sustainable Holistic Planning System. SHPS are programs that create frameworks for communities, jurisdictions, and institutions to make and achieve sustainability goals, and to receive recognition for achieving these goals. They cover goals from income inequality to green buildings to sustainability education. Examples are *LEED for Cities and Communities*, *Complete Streets*, and *Climate Smart Communities*. They help communities, institutions, etc., make improvements that better the quality of life that their constituents experience, and the level of their environmental sustainability (Backus, 2019).

This project focused on post-secondary institutions, and there are SHPS designed especially for them. One primary example is *AASHE STARS*.

“The Association for the Advancement of Sustainability in Higher Education (AASHE) is one of several organizations in North America that was established as a result of the growing campus sustainability movement. AASHE provides thought leadership, resources, professional development opportunities and a framework for demonstrating the value and competitive edge created by sustainability initiatives” (Fadeeva, 2014).

The Association for the Advancement of Sustainability in Higher Education’s Sustainability Tracking, Assessment, and Rating System allows colleges to work towards achieving goals in academics, engagement, and operations (i.e. buildings, energy usage), as well as other metrics. The more goals they achieve, the more credits they receive, and the higher *STARS* designation they obtain. They can be a reporter (meaning that they don’t receive a rating, but still participate in the program), or achieve Bronze, Silver, Gold, or Platinum ratings (“AASHE Technical Manual”). *STARS* is a self-reporting framework, so university officials must fill out reports to achieve the credits. The program makes it easy for colleges — from community to research universities — to start out on a sustainability journey, and to make long term goals (“About STARS”).

Clarkson University currently holds a Gold rating, and they participate heavily in the engagement category (“Clarkson University,” 2019). Currently, Clarkson students are working

with the Village of Lake Placid to help them achieve *LEED for Communities* credentials, as well as to update software and technology that departments like Energy use to make them more efficient and sustainable (Buck, 2018). According to Clarkson's most recent *STARS* report, a large portion of their credits received were in the academic category, which includes courses offered, learning outcomes, and research opportunities for faculty and students ("Clarkson University," 2019).

Students at Lafayette College in Pennsylvania completed a report on the effectiveness of *STARS* at Lafayette. They determined that in the academics category, *STARS* helped the college assess the level of sustainability curriculum offered, and it showed a clear picture of what needs to be improved (Beyer, 2015). This shows that *STARS* can successfully bring attention to shortcomings in post-secondary sustainability efforts. Through their research, this team of students determined that *"Opportunities such as the ones presented through these credits can allow students to leave Lafayette not just with the knowledge in whatever subject they are majoring in, but also with the knowledge of how that subject contributes to the multidisciplinary subject of sustainability"* (Ibid). Lafayette College currently holds a Silver rating ("STARS Participants," 2019).

The University of New Hampshire at Durham currently holds a Platinum rating. On page four of their "Pathway to Platinum" report it reads, *"[Achieving Platinum Status] furthers our ongoing goal of reinforcing sustainability as a core value and identity at UNH, in a variety of ways"* ("UNH Pathway," 2018). They share that this rating has given students a competitive career advantage because of the student body's demonstrated interest in environmentalism, and the classes that they have taken. It also provides faculty with more opportunities for research funding. The University of New Hampshire at Durham is setting a great example for other institutions by having a faculty course incentive fund to inspire more sustainability related classes. They have also integrated sustainability related content into 453 out of 3273 undergraduate classes (Ibid). This illustrates that striving to achieve *AASHE STARS* ratings has helped to improve the quality and quantity of sustainability education at a post-secondary institution, which is why I decided to focus on *AASHE STARS* and its connections with post-secondary curriculum.

"The 'why' of sustainability requires asking students questions that are future-oriented. As a result, teaching sustainability in schools raises climate change awareness and illustrates to students how they play a significant role in the solution of this problem" ("Teaching Sustainability"). While all aspects of an institution's sustainability efforts are important, teaching sustainability needs to be given more attention. Having "green" buildings and solar panels on campus are great steps, but they don't matter in the long run if people don't understand their significance. Students need to leave their post-secondary school with a sense of environmental awareness, no matter their major. Sustainable values need to be instilled in all students, across all disciplines, so that all members of the workforce can be a part of the solution to environmental degradation. As stated by Sustainability Expert Caitlin Marsh in her TEDx Talk at Alma College, *"Sustainability isn't a field in it of itself, but it's a way of thinking about whatever field you happen to be working in"* (Marsh, 2015). And so, all members of the workforce need to understand how sustainability applies to their career, and how they can have a positive impact on the planet.

Methodology:

In five weeks, I have explored the concept of SHPS, and how post-secondary institutions are growing in their involvement in sustainability efforts. My first step was to read background documents on SHPS in general, and on my mentor Toby Harmon's research project, which is also dealing with SHPS. Those documents included "USGBC LEED for Communities Certification of the New York State Olympic Region" written by students from Clarkson's 2018-2019 Adirondack Semester (Buck, 2018), and "Analysis and Design of Tools to Enable Sustainable Holistic Planning Systems in Non-Urban Community Contexts" (Backus, 2019). I used these documents to gain a grasp on how SHPS are used in general.

After discussions with Dr. Stephen Bird, I decided that I wanted to focus on sustainability efforts in post-secondary contexts. I accessed books on sustainability in education from Clarkson's library, such as *The Sustainability Curriculum : The Challenge for Higher Education* by Cedric Cullingford and John Blewitt (Blewitt, 2009). Through these readings, I came to realize how critical sustainability education is for our overall environmental efforts. Because of my earlier studies of SHPS, like *LEED for Communities*, which have seen major success in encouraging sustainability efforts in communities, I wanted to see how SHPS can be applied to universities.

With help from Dr. Bird, I found my focus on the *AASHE STARS* program. I read the program's technical manual and studied its metrics for achieving credentials. I found that it has a specific metric for education, and that post-secondary schools can receive credits for offering sustainability-related courses to their students. My overall research topic was exploring the options post-secondary institutions have to improve their sustainability education and curriculum. With a focus on *AASHE STARS*, I developed my specific research question: "*Does AASHE STARS effectively improve sustainability education in post-secondary institutions?*"

With this question in mind, I researched institutions that participate in *AASHE STARS*, as well as universities that are rated as environmentally friendly by groups such as the Sierra Club. I looked to see what benefits these universities claimed to gain by participating in a sustainability program. The University of New Hampshire at Durham is one of four American universities to receive a Platinum rating from *STARS* ("UNH Pathway," 2018). I studied their "how-to guide" that they published online, which serves as an example for other institutions.

I based much of my conclusion in case studies including UNH, Clarkson, The Evergreen State College, and Lafayette. Using UNH's "Pathway to Platinum" and visits to Lake Placid with Clarkson's SHPS research team, I studied how *AASHE STARS* has impacted these institutions. While Clarkson is helping Lake Placid become more sustainable, it is also gaining more credits towards its *STARS* rating by providing sustainable internship and research opportunities for students, and by engaging with a community. UNH has received much recognition for its rating, and its students have access to many academic environmental opportunities because of the program. Their report also claims that the program has made their campus operations more efficient and cost effective, making *STARS* a financial advantage for them as well ("UNH Pathway," 2018).

Finally, I compiled all of my findings on the benefits of participating in the *STARS* program for post-secondary institutions, and I developed suggestions for institutions that are trying to take their sustainability efforts a step further.

Results and Discussions:

A major category of *AASHE STARS* is the amount of sustainability related courses offered by a post-secondary institution. Clarkson, and many other institutions, like SUNY College of Environmental Science and Forestry, offer classes like “Sustainable Infrastructure and Building,” “Sustainable Theory,” and “Environmental Economics” (“Clarkson Courses,” and ESF Office). This is a great step, but students outside of environmental degrees or interests may never take these classes. And students who go to universities not known for environmental majors may never get to experience these opportunities. However, if general education requirement classes in the humanities and in STEM also discussed sustainability, more of the student body would be exposed. Students could read Rachel Carson novels in English classes, and discuss the Environmental Movement in history classes. The required reading novel could be on a sustainability-related topic; sustainability should be integrated into all classes, even if to a small extent. The health of the environment affects all people, so all people should be aware of the problems that it is facing.

Universities that attempt to integrate sustainability into courses across disciplines may experience issues based in curriculum priorities and faculty preferences. Would sustainability concepts take time away from other important topics that professors hope to cover in their courses? Would attempting to create more sustainability related courses prevent professors from teaching courses that they believe to be important and interesting? Would this deter new faculty members, and or cause professors to move on to a different university? The University of New Hampshire’s course incentive fund provides an opportunity for professors to *choose* to teach sustainability related courses while receiving funding for the class (“UNH Pathway,” 2018). Other institutions could follow this example, which could attract potential faculty members who are interested in sustainability. By incorporating sustainability concepts into general education requirements, professors could continue to teach, for example, an American History Class, but include a lecture on the American Environmental Movement. While it may take time away from other topics, it can be tied into other concepts and themes that the professor is hoping to present to their students.

Another option institutions could adopt would be to require students to take one sustainability related course a year in order to graduate. This would cause one of two likely outcomes. One would be that the institution could keep sustainability courses separate from courses in other disciplines. Students would have to take a course specific to sustainability and or environmental topics, despite their major. A second possible outcome would be the creation of unique and diverse classes like “sustainability in small business,” “sustainability in real estate,” or “sustainability in food management.” Because the requirement would apply to all majors, classes that pertain to each discipline more closely could be offered to better fit student interests.

To take the course requirement option a step further, students themselves could be incentivized to take multiple sustainability related courses: special diploma designations in sustainability literacy could be given, based on the amount of courses taken. If students could graduate from a math major or a business major with an “achievement in sustainability literacy” medal on their diploma, they would be more marketable to the ever-greening economy. And the university that provides these sustainable opportunities would be more marketable to incoming students, as the American youth grow more and more interested in environmental issues.

As for the *STARS* program itself, I would suggest that they add a way for schools to earn credits when they require students to take sustainability related courses; this would take simply offering these courses to the next level.

**Suggestions for Post-Secondary Institutions
Beyond Adopting AASHE STARS:**

- Implement sustainability into courses across all majors/disciplines
- Require all students to take a certain amount of sustainability courses in order to graduate
- Give “achievement in sustainability literacy” diploma designations to students, who upon graduation, have taken a significant number of sustainability courses.

The *AASHE STARS* program is a great starting point for post-secondary schools that are looking to begin a sustainability journey. It improves a school’s reputation in the environmental community, helps provide research opportunities for professors and students, and lowers operational costs for schools when they switch to cleaner energy and track energy and water usage. This demonstrates that partaking in environmental sustainability efforts benefits post-secondary institutions and their constituents, and that there are easy ways for institutions to join in the effort.

STARS is not a perfect SHPS, however, and there are some issues that institutions have come across while participating in the program. Kyle C. Murphy’s master’s thesis entitled “Evaluating the Sustainability Tracking, Assessment, and Rating System (STARS) at the Evergreen State College,” delves into issues discovered in the process of implementing *STARS*. Determining which courses qualified as sustainability related was difficult and time consuming, and because of Evergreen’s unique academic structure, it could not receive many of the program’s academic

credits (Murphy, 2009). *STARS* lacks the ability to adapt to unique university needs, and filing reports is time consuming for university officials and participating faculty (Ibid).

As more institutions begin to participate in these programs, they will continue to improve. Despite setbacks and available resources — including time — post-secondary institutions must continue to take strides towards sustainability leadership and achievement.

“[Higher education] is no longer in the privileged position of simply observing, criticizing and evaluating what goes on beyond the seminar room or campus. It, too, is a global player imbricated in both the production of knowledge and wealth and the maintenance of poverty and insecurity through its growing role as servant to the global economy. Higher education therefore helps to shape the material reality we all experience and the ways in which we attempt to understand, reflect on and, perhaps, even change it” (Blewitt, 2009).

Conclusion:

In five weeks, I have gained a comprehensive grasp of SHPS programs and their implications in a post-secondary context. I was able to find case studies that illustrated the benefits of SHPS programs, specifically *AASHE STARS*, and to develop suggestions for curriculum improvements.

Because of the time constraints, I was not able to observe how my suggestions worked when applied to an institution. In the future, research will need to be done on the successes and failures of these suggestions. More case studies will need to be compiled to discover which aspects of *AASHE STARS* are most beneficial, and which need improvements. I would also like to present my suggestions to an institution, like Clarkson, and interview school officials on their opinions, as well as on issues they have come across in the past while trying to implement sustainability initiatives.

However, I was able to determine that overall, SHPS like *AASHE STARS* are beneficial to institutions, and to their surrounding communities. I discovered what a crucial role higher education plays in sustainable development, and that many universities are working hard to make a positive impact. A step that I hope to take during my four years at Clarkson is to reach out to post-secondary institutions, including Clarkson, about sustainability efforts, and to work with them to help improve their efforts.

Students need to learn about sustainability in the classroom, and then they need to take that knowledge and apply it to the problems they see around them. The most important thing that I have discovered through this project, is that for anything to be accomplished, there first needs to be education.

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