

A SUSTAINABILITY LITERACY ASSESSMENT OF STUDENTS AT EAST CAROLINA UNIVERSITY

by

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Abstract

Sustainability is achieved when social, environmental, and economic functions are operating in unity at maximum efficiency. This study takes a closer look at the sustainable knowledge of students at East Carolina University. An electronic survey of ten questions was developed and distributed through e-mail to approximately four hundred randomly selected ECU students. The data was then analyzed to identify whether or not there were patterns of knowledge in relation to gender, academic level, and college through which each student is pursuing their degree. The findings can be used to determine if there needs to be an increase in sustainable education at ECU and ultimately earn the university points towards being qualified as a sustainable institution by the standards of AASHE STARS.

Introduction

The Association for the Advancement of Sustainability in Higher Education (AASHE) implements “The Sustainability Tracking Assessment and Rating System” or STARS for short, which ranks colleges and universities on their sustainable achievements based on a list of credentials organized by a point system. An institution’s score “is based on the average of the percentage of applicable points it earns in each of the three categories: Education and Research; Planning, Administration and Engagement; and Operations.” The institution can receive one of four titles varying from Bronze to Platinum based on the amount of points they earn. (STARS Technical Manual, 2013)

The United States Environmental Protection Agency defines sustainability as “creating and maintaining the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations.” (Sustainability Basic Information, 2008) Commonly, sustainability is referenced to encompass three ‘pillars’; the environment, society, and the economy. Clearly by this definition, sustainability is crucial to our existence. With this in mind, it is alarming to think that many people know nothing or believe they know more than they actually do when it comes to sustainability. (Coyle, 2005)

East Carolina University is currently unranked by AASHE STARS and has not yet applied. A review of the University’s AASHE progress and status during an Honor’s College seminar revealed a desire to engage with the STARS system but not putting resources in place to assess status and progress. One credential not yet attempted to qualify for is Education and Research Credit thirteen: “Sustainability Literacy Assessment” worth two points. The assessment is intended to gauge the success of

educational initiatives at the university by “focusing on knowledge of sustainable topics, not values or beliefs.” (Urbanski, 2012) A sustainability literacy assessment at ECU would not just be valuable for earning the AASHE STARS credit points. This assessment would also make the University aware of how much or how little students know about sustainability. This would demonstrate where the University stands as far as operating at our maximum sustainable potential as well as make us more competitive with universities in our state that are currently ranked by AASHE STARS such as Duke University, Elon University, Appalachian State University, and The University of North Carolina at Chapel Hill, amongst others. (STARS Technical Manual, 2013) This assessment serves as a baseline measurement of ECU’s sustainability literacy so that potential improvements could be made in both operational and educational departments.

Literature Review

Although Sustainability Literacy is not a new topic, it is beginning to resurface more often in recent years for various reasons. Specifically on college campuses this is due in part to changing societal interests as well as the heightened awareness of the impacts of the AASHE STARS program and increased research being generated on the topic of sustainability. (Urbanski, 2012) One of the challenges in conducting surveys or assessments is that there is protocol or standardized way of obtaining the information. This means that producing and interpreting meaningful results can be challenging. (Urbanski, 2012)

While there is no definitive method for assessing sustainability literacy, a common practice institutions have administered is the distribution of surveys to their students. On

numerous occasions the same questions appeared on surveys distributed by different universities. One of the most common occurrences, as was found on the survey distributed by the University of North Carolina at Chapel Hill were questions pertaining to demographics. These included “What is your current academic level?” and “In which schools or colleges are you pursuing a degree?” These questions are valuable in determining whether or not certain schools within the college or certain academic levels (i.e. freshmen, sophomore, junior, senior) have a better understanding of sustainable topics than others.

Another common practice as was clearly displayed by the survey distributed by the University of Maryland was to include even amounts of questions pertaining to the three pillars of sustainability- society, the economy, and the environment, as well as tailoring these questions to be relatable to the local environment. This way it is more obvious to researchers whether or not students are more literate in certain areas of sustainability in comparison to others. Another way the University of Ohio utilized this method was during their analysis by trying to identify correlations between sustainability literacy and different attitudes and behaviors. Arizona State University asked students to indicate their level of interest in sustainability by choosing one of six statements ranging from “I have a passion for sustainability” to “I have no interest in sustainability”. This question is significant in determining whether students’ knowledge of sustainability correlates with their interest on the topic.

Overall there is certainly much more research to be done in this area. It is often difficult to compare most studies with others because essentially a university can administer any method they so choose. As was stated earlier, one of the only

requirements of the AASHE STARS program is that the assessment explore and focus on topics of sustainability in general rather than appeal to individual opinions and beliefs on the subject. (STARS Technical Manual, 2013) As Kevin Coyle says in his article *Environment Literacy in America*, “Most Americans believe they know more about the environment than they actually do.” (Coyle, 2005) These sustainability literacy assessments attempt to find out whether or not the same is true on college campuses.

While the distribution of a survey seems to be the most common way to gauge a college student’s knowledge on this topic based on research of methods utilized by universities around the country, the fact that there is no standardized protocol makes it difficult to determine the vital questions necessary in order to deem a survey “effective”. In order to combat this issue we compiled some of the most common questions found on the aforementioned surveys. The questions were narrowed down to ten giving each pillar of sustainability an equal representation. The draft survey was presented to a panel of students already enrolled in a course which focuses on sustainability at East Carolina University. We asked them to not only validate the questions we chose but evaluate the way they were asked and the clarity of each question as well. Based on their feedback and suggestions we were then able to develop a survey that would produce results which we felt would accurately depict the sustainability literacy of students at East Carolina University.

Methods

An electronic survey was chosen to administer the study. Electronic surveys have been done before by other universities who had similar goals and it would be an effective

way to obtain information that could be easily sorted and analyzed in a short amount of time. The survey was administered electronically for two reasons. One reason was simply because it was a faster and easier way to reach many students by distributing it through university allocated e-mails and the students would have the opportunity to complete the survey whenever it was convenient for them which we anticipated would contribute to a higher response rate. The other reason was that the researcher felt electronic surveys would be best is because based on our topic of sustainability, we didn't want to send the wrong message by printing and distributing mass amounts of paper surveys which could be interpreted as counterintuitive.

A draft version of the survey was developed based on the literature review and benchmarking against the other university's surveys. The survey was reviewed with a panel of six undergraduate students enrolled in a sustainability special topics course at East Carolina University. In the end the survey constituted of ten questions that the researchers felt encompassed the three pillars of sustainability- people, planet, and prosperity. The survey was limited to ten questions because it was anticipated that a shorter survey would yield a higher response rate. The survey began with questions covering demographics such as "What is your Gender?" "Please indicate your academic level as of Fall 2013" (the semester the survey would be distributed) and "In which College/School are you pursuing your degree?" The researcher intended to use the results of these questions to see whether or not one's gender, academic level, or a specific college within the university was more educated or even more interested than another when it comes to the topic of sustainability. Students were then asked to "Indicate which of the following statements best describes your level of interest in sustainability" and

provided a list of responses ranging from “I have a passion for sustainability” to “I have no interest at all in sustainability”. The results of this question were intended to determine whether or not the level of interest students have in the topic relates to their understanding or the level of which they have educated themselves on it. Questions five through nine required students to identify the three pillars of sustainability, distinguish factors that influence human population’s impact on the Earth’s resources, the best way to support a local economy, rate the environmental impacts of certain activities, and determine the country with the highest recorded population growth rate as of 2013. These questions strictly measured sustainability literacy. The tenth and final question asked students to estimate the amount East Carolina University spent on utilities in the past year. This question was meant to see both how economically realistic students were as well as aware of a sustainable issue on their very own campus.

The survey was developed on Qualtrics, an electronic survey generator used by East Carolina University. The survey was submitted through the electronic portal for institutional research at ECU run by the Office of Research Integrity and Compliance and consequently received approval from the Institutional Review Board (UMCIRB 13-002182).

Upon receiving approval the survey was then randomly distributed to approximately four hundred students at East Carolina University to their student e-mail accounts. The e-mail notified students that they were being invited to participate in a research study and included some background information on our intentions. Students were informed that their participation in the survey was completely voluntary and that there would be no penalty for not taking part. Students were encouraged to share the

survey with other people who were enrolled at East Carolina University. The Survey remained open and active from November 7, 2013 to December 1, 2013 when it was then closed to participants so the results could be evaluated.

Results

Of the approximately four hundred students who received the survey, when the survey was closed on December 1, 2013 there was a total of one hundred and twenty four responses which yielded a response rate of 31% which was satisfying considering the limitations of the sample size. Of those respondents, 76.6% were females and 23.4% were males. (Table 1)

	Frequency	Percent
Valid Male	29	23.4
Valid Female	95	76.6
Total	124	100.0

Table 1

Respondents were 8.1% Freshmen, 21% Sophomores, 26.6% Juniors, 40.3% Seniors, and 4% Graduate Students. Based solely on the amount of questions answered correctly vs. incorrectly it became clear that ECU students have very limited knowledge when it comes to the topic of sustainability. Only 20.2% were even able to identify the three core aspects of sustainability. (Table 2)

	Frequency	Percent
Valid Reduce, Reuse, Recycle	83	66.9
Valid People, Planet, Prosperity	25	20.2
Valid Fair trade, Green Buildings, Recycling	7	5.6
Valid Water, Electricity, Plants	8	6.5
Total	123	99.2

Missing System	1	.8
Total	124	100.0

Table 2

The results were then analyzed using chi square tests in SPSS to determine if there were any statistical significant relationships between gender, class rank, school in which a student is pursuing their degree, and their interest in sustainability with correct or incorrect answers for specific questions.

When asked to rank their interest in sustainability given five options ranging from “I have no interest at all in sustainability” to “I have a passion for sustainability” the 7.3% of students who considered themselves ranging from interested to passionate did not answer any more correctly than the 92.7% who ranged from neutral to no interest. (Table 3) There were no significant relationships between interest in sustainability and knowledge of sustainability.

	Frequen cy	Percent
I have a passion for sustainability	11	8.9
I have a considerate interest in sustainability	58	46.8
I am neither interested nor disinterested in sustainability (neutral)	46	37.1
I have very little interest in sustainability	8	6.5
I have no interest at all in sustainability	1	.8
Total	124	100.0

Table 3

There were also no significant relationships between gender and knowledge, or school in which a student is pursuing a degree and their knowledge of sustainability. The only statistically significant relationship existed between class rank and the ability to

identify approximately how much money East Carolina University spent on utilities in the past year. The correct answer to this question was \$18,000,000.00, a number produced by the university's Energy Manager. Only 29%, a total of 36 respondents estimated that amount. (Table 4)

	Frequency	Percent
18,000	0	0
180,000	11	8.9
1,800,000	77	62.1
18,000,000	36	29.0
Total	124	100.0

Table 4

Of those 36, 31 of respondents were Junior, Senior, or Graduate Students. (Table 5)

This Chi Square test reveals the relationship between class rank (Upperclassmen/lower classmen) and their knowledge of East Carolina University's utility bill. Upperclassmen were more knowledgeable about the University's utility bill compared to lowerclassmen ($p=0.017$).

		Q10v2		Total	
		Incorrect	Correct		
Q1v2	Jr, Sr,	Count	57	31	88
	Grad	Expected Count	62.5	25.5	88.0
	Fr, So	Count	31	5	36
		Expected Count	25.5	10.5	36.0
Total	Count	88	36	124	
	Expected Count	88.0	36.0	124.0	

Table 5

This relationship could exist due to the fact that only freshmen are required to live on campus at East Carolina; this means that all other classes can live off campus in apartments or houses. If students are living off campus and are paying their own utility

bills they may have a better understanding of the typical cost of running a household and can then project that to an estimate of what it may cost to run an entire university.

Conclusion

This study was extremely eye opening. Based on these results it is clear that it would be very beneficial to East Carolina University to make greater efforts to implement sustainable education into their curriculum. A great place to start would be freshmen orientations and seminar classes. Many freshmen are already required or choose to take “COAD” classes which the East Carolina University website describes as a class aimed to “assist freshmen in being successful in their first year of college and beyond.” (“First Year Programs,” 2012) Sustainability fits perfectly into this description. If freshmen were taught efficient social, environmental, and financial practices early on it would be beneficial not only to the university community but hopefully these would become lifelong habits, which could ultimately benefit society as a whole.

If students were educated on the ways their actions impact the world as well as others around them they may be more conscious about things like how much time they spend in the shower or where they choose to buy their groceries. The results of this study can be used by the university’s new sustainability program as evidence that sustainable education is limited and necessary on campus. If utilities are as astronomical as \$18,000,000 and students estimated they cost about \$10,000,000 less than that, one can’t help but to wonder if they would still be that high if students knew how much the university was actually spending and ways to cut that cost. If operational costs went down maybe tuition costs wouldn’t experience rises as drastic as they have been in the

past. East Carolina University must first educate their community and can then take steps towards being qualified as a sustainable institution.

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