ASSESSMENT OF KNOWLEDGE AND AWARENESS OF ''SUSTAINABILITY'' INITIATIVES AMONG COLLEGE STUDENTS

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Abstract - Campus sustainability is essential for any university. Campus sustainability denotes the potential of the university to develop new ideas regarding sustainability through research, teaching, and practices. It necessitates improved academic infrastructures, setting right faculty priorities and practices that ensure that the university community is aware of sustainable practices, and that its practices reflect sustainability. This study assesses college students' knowledge and awareness of sustainability issues. After IRB approval, data were collected using the campus sustainability questionnaire. Students from a university in the southeastern part of Texas in the United States were selected and asked to participate in the study voluntarily by answering a self-report questionnaire. Findings indicate that only a minority of the students knew what sustainability was, but 95.8% indicated it was important. Although the university has committed to climate and sustainability agreements, majority of the students were not aware of it and only about 17% knew that the University's Strategic Plan has a sustainability component. Nearly 36% of the students reported receiving information about sustainability during their campus orientation. In terms of recycling, majority of the students indicated unawareness of e-waste recycling on campus; however, more than 70% reported that the library limited free printing in computer labs. More than half of the students also indicated that sustainability issues were not infused into curriculum courses or programs, and they had no knowledge of any alternative power source for the university. We concluded that a majority of the students were not conversant with sustainability issues and were largely unaware of campus sustainability initiatives. We recommended more effort to increase sustainability initiatives on campus by involving faculty, staff, and students in such endeavors. Educational programs should incorporate sustainability into their curriculum to increase students' knowledge and consciousness regarding these issues.

Keywords - Sustainability, College students, Awareness.

I. INTRODUCTION

Healthy ecosystems and environments provide vital goods and services to humans and other living organisms. In the twenty-first century, we are witnessing a growing number of people and rising levels of consumption per capita. Human inability to fit their activities into a pattern that conserves the environment and saves energy is fundamentally changing the planetary system. Such patterns as well as rising energy consumption are depleting natural resources and degrading the environment. To meet the need of the present generations without compromising the ability of future generations to meet their needs, sustainable development is fundamental. Today, it is essential that communities and governments place more emphasis on ensuring that economic development is achieved in a sustainable way. To achieve sustainability, and improve the quality of our environment, it is essential to use renewable energies and energy efficiency measures that ultimately will reduce energy consumption and air pollution. It is also important for governments, businesses, organizations, colleges, and universities to enact policies that incorporate practices and technologies that are designed to promote sustainability.

II. UNDERSTANDING SUSTAINABILITY

The United Nations report linked environmental sustainability and economic development. The Brundtland Commission stated sustainability as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. This is a widely recognized definition of sustainable development. Recently, sustainability has become a popular concept in environmental, health, policy, and research domains. There is an increased knowledge and awareness regarding issues surrounding sustainability. The current prevailing definition refers to sustainability as a “dynamic equilibrium in the process of interaction between a population and the carrying capacity of its environment such that the population develops to express its full potential without producing irreversible, adverse effects on the carrying capacity of the environment upon which it depends” . Sustainability has been extensively discussed as involving all aspects of economic, environmental, and social domains brand, helps justify the cost and helps consumers relate to the product (Sobh and Perry, 2006). Therefore the primary focus of this paper is to perform feasibility and identify the best marketing strategy for the launch of this international brand in Sudanese Market.

III. RESEARCH OBJECTIVES

In answering whether sustainability is important on university campuses, the majority (95.8%) responded “Yes”. We examined the seven dimensions of sustainability, and Table 2 summarizes our finding to the sustainability awareness dimensions.

From Table 2, we further explored the dimensions of concern. The leadership dimension is one of particular interest. Though the majority of the students (54.8%) agreed that the university advocates for policies that promote campus sustainability, about 60% do not have knowledge on whether or not the university has signed the "American college and university presidents climate commitments," nor do they know whether the university is a member of "the association for the advancement of sustainability in higher education."

Another area of concern is the campus-wide effort on sustainability awareness

These results show that students indicated that at the organizational level, sustainability is not embedded into the strategic plan and majority of the students were not aware of a personnel at the university level spearheading sustainability efforts.

On the other hand, the dimensions on student activities show that there is some focus on sustainability.

About 72% of the sample indicated that student clubs engage in environmental outreach or recycling as well as earth day. However, 43% of the students reported that sustainability was not included in the student orientation program and 57% reported that their student publications did not focus on sustainability. The majority of the students (60%) also indicated that there was no on-campus organic garden for students.

Within the dimension of recycling, most of the students (79%) reported that the university limits free-printing in computer labs and libraries and they have noticed that paper materials such as course catalogs and directories are being replaced with online options. See for full details.

Another dimension of interest is the curriculum, which is a major means through which sustainability practices are communicated to students. More than half of the students surveyed indicated that there were no courses or programs that focused solely on sustainability issues

Finally, students' awareness in terms of energy, transportation, and food-related sustainability issues indicated that a lot of positive initiatives have been undertaken. For example, the majority of students self-reported awareness of motion sensors, the use of LED lighting, free campus transportation, and availability of bike racks except the availability of organic produce in the on-campus dining facilities.

IV. RESEARCH QUESTIONS

(1) Do students value sustainability issues on their campuses?
(2) Do students understand the concept of "sustainability and or sustainable development"?
(3) Are students aware of any sustainability efforts or practices on their campus?
(4) Have students taken any courses that incorporate sustainability?

Answer to these questions would help the researcher understand both, the existing product and the new desired market, and hence recommend the most suitable entrance strategy for the brand.

V. CONCLUSION AND RECOMMENDATIONS

This study reveals students' level of knowledge and awareness of sustainability efforts on campus. Overall, students lacked basic knowledge on sustainability and furthermore were not aware of efforts made, the university, as well as courses offered on sustainability and environmental health. Universities have the ability to educate and empower students to believe in and take the necessary steps and actions to promote economic, environmental, and societal change that brings about a healthier and sustainable world.

To date, while many institutions of higher learning acknowledge the need for sustainability to be at the center of the institution's daily operations, the issue remains how best sustainability and the environment can be made a cornerstone of academic practice . There is a growing consensus that economic and societal benefits can be achieved when there is healthy and sustainable environment. Successful long-term sustainability efforts require committed champions such as faculty or staff members . Students, despite being very transitory for them, can play an important role in initiating sustainability programs. The common challenge for sustainability efforts on campuses for faculty, staff, and students is the lack of financial support that is needed for implantation of campus-wide sustainability initiatives. However, institutions can solicit fees from students or set aside operation budget to hire a staff to run sustainability initiatives; certain conditions must prevail for sustainability initiatives and programs to succeed in higher education institutions.

Campus-wide sustainability

Campus-wide sustainability efforts and engagement must be fostered. All educational programs, research, and services must be geared toward cultivating behavior and thinking pattern that foster sustainability. Faculty, staff, and students must be involved in various sustainability-promoting activities. Cocurricular activities foster sustainability culture into campuses. A study by Brinkhurst et al. found that faculty and staff members were critical leaders in efforts to achieve lasting progress toward campus sustainability .

Curriculum

A curriculum that can train students to understand sustainability and address sustainability challenges is necessary. In degree programs there is a need to develop sustainability-related courses. These courses

can focus on the three dimensions of sustainability such as economic prosperity, environmental health, and social well-being . These courses will introduce students to the concept of sustainability as well as build knowledge about each sustainability dimension.

Research

Research is a major component of university academic rigor. Research can facilitate the understanding of best practices, technologies, and approaches to solving sustainability issues. A university can create and use tools such as campus carbon calculator or sustainable solutions to measure carbon emissions and energy management efforts .

Partnership and engagement

University–community partnership and engagement is important in enhancing sustainability efforts on college campuses. Engaging the wider community has strong impact on solving sustainability challenges. University–community partnerships can offer an opportunity to understand the challenges that people face in communities, encourage local sustainability innovations, and contribute to policy development at various levels of local communities . University–community partnership can also serve as a tool for students to sharpen their leadership skills and real-world problem-solving skills. Overall, this partnership should involve education and outreach activities and programs. The education and outreach activities can increase environmental sustainability and energy awareness on- and off-campuses.

Sustainable buildings

Campus buildings are major consumers of water, energy, and source of greenhouse gas emissions. Designing and building sustainable buildings will promote sustainability . To reduce campus greenhouse emissions, a campus can implement high-efficiency upgrades, such as installing building meters that monitor and compile data on flows of electricity, water, and steam. Other measures include installation of efficient water toilets, heating systems, building automations to control air-conditioning, and wider modern windows to allow more light into the building, combined with shading, insulation, and ventilation. Today, many modern institutions of higher learning are investing in green building designs. Energy-efficient buildings reduce energy consumption and greenhouse gas emission almost immediately.

Energy efficiency

Campuses utilize lots of energy for heating and cooling, lighting, cooking, and running electronics such as computers. Energy-saving measures such as installation of clean renewable energy can reduce consumption of (fossil) energy and greenhouse gas emissions and can save money . Campuses can implement low-cost-efficiency upgrades, launch campaign on energy utilization awareness, and promote energy-conserving behaviors. Energy-conserving behaviors include turning off light, computers, and other appliances when exiting classes, offices, labs, and dormitories. Also, purchase of energy star items, use of LED light, and adoption of efficient heating policies can have significant reduction in energy cost. Turning to renewable energy sources such as solar, biomass, and wind along with decreased reliance on nonrenewable resources (e.g., oil, natural gas, and coal) is also beneficial.

Food and dining services

Universities can buy food locally to support local economies. However, universities can create demand for organically grown food; hence, slowly impact food production systems thereby support sustainable environment. Dining service can reduce food waste by creating better food options and educating students. Sustainable dining efforts based on seasonally prioritized locally grown food from sustainability practicing farmers are important initiatives to be implemented. This food must be organic, such as eggs from free-range chicken, vegetables, fruits, dairy products, honey, and all grain-based foods.

Purchase of environment-friendly products

Purchasing environmentally preferable products can help preserve natural resources as well as reduce cost and pollution. Universities can purchase recycled papers with 30% or more recycled materials and chlorine-free papers, purchase biodegradable dishware, reusable bottles, and green cleaning products with low volatile organic compounds (VOC). Also, purchasing environment-friendly and socially preferable products and services support growth and expansion of companies with strong commitment to suitability and environmental health .

Reduction of vehicle use

Globally, transportation sector is the largest contributor of greenhouse gas emissions and particulate matter (PM) . These soot and metal particles give smog its cloudy color. Small particles as 10 μm in diameter can penetrate deep into the lungs and become a threat to human health . Nearly 28.5% of greenhouse gas emissions come from the United States and 14% come globally from the transportation sector . These emissions pollute the air, water, and soil. Emissions from vehicles and other forms of transportations have been epidemiologically and clinically linked to major health problems such as cardiovascular diseases, cancer, impaired immune systems, birth defects, genetic mutations, asthma, cystic fibrosis, diabetes, chronic obstructive pulmonary disease (COPD), and eye diseases . Students, faculty, and staff can implement innovative approaches to reduce vehicle usage by initiating programs such as ride your bicycle to class,

carpooling/sharing, public transport, and universities purchasing hybrid vehicle fleet. These efforts can positively impact sustainability efforts and cost reduction.

Waste management

Waste production due to manufacturing, distribution, use, and disposal of these products negatively affects the environment and human health. Improper handling of waste creates a potential risk to school children, waste workers, and communities living in nearby areas with improper waste management program . Institutions of higher learning generate all kinds of wastes, including recyclables (paper, cardboard, aluminum, and household batteries), e-waste (old computers and hardware), florescent light bulbs, as well as biological, chemical, and radioactive wastes from research activities. These institutions should focus on strategies to minimize waste production; for instance, implementing proper inventory of supplies before ordering new ones, ordering only what is needed, and reuse and recycling. In order to address the root cause of waste production, waste diversion and source reduction (how products are designed and produced) must be examined . Waste diversion can cut cost universities spend on collecting and transporting solid waste to landfills. Furthermore, campus-wide campaigns on waste reduction must be initiated and implemented to contribute to the long term of campus attitude change. Even though this university study has a sustainability component as one of its strategic goals, many students were unaware of the definition of sustainability. To effectively implement and foster sustainability, concerted effort must be employed to infuse sustainability in every aspect of campus life. Principles and goals of sustainability must be communicated effectively throughout the institution. In addition, AASHE offers valuable workshops to support faculty and other individuals designing curriculums. This study was limited to 73 students at a Southeastern Texas university. Findings cannot be generalized to all students or other institutions of higher learning in Southeastern Texas and beyond. We recommend a follow-up study to assess current awareness and implementation of sustainability on campus. The study can be expanded to include students, faculty, staff, and administrators. Additionally, there is a need to extrapolate this study to include more universities and increase sample size.

Research Approach

There are two approaches inductive and deductive. For the following study inductive approach will be applied because it will follow the bottom up approach (Daff, 2011). First it will identify the specific information then it will drive towards generalized findings of the results. The report does not aim on creating any hypothesis; rather work with the theories and models present .

Research Strategy

A combination of survey and ethnography will be used for the purpose of this research. Survey is one of the most popular methods of collecting data for research. A series of relevant questions will be asked and the recorded responses will be used for the purpose of analysis. Ethnography is a written description of a particular culture- the customs, beliefs and behaviours- based on information collected through fieldwork (Marvin Harris and Orna Johnson, 2000). These two methods would aid the understanding of Sudanese culture, market and assess potential customers' readiness for the new product.

Data processing andanalysis

The data were analyzed using SPSS v.24 statistical program. Responses were entered into the SPSS and arbitrarily coded (1 = yes; 2 = no, and 3 = not applicable). The analysis consisted of descriptive statistics, generating frequencies and percentages to provide sample characteristics.

Implications and influences

To date, numerous institutions of higher learning are recognizing the moral imperative associated with sustainability. However, a majority of academic programs, curricula, courses, and general practices of these institutions do not reflect the integration of sustainability initiatives. This study revealed that most participants were neither aware of campus sustainability initiatives nor able to clearly define sustainability. This demonstrates the existence of a bigger problem beyond students knowing the definition of sustainability. It reflects the institutions' slow pace or hesitance to change the culture of business as usual. Our findings show that sustainability is not a new phenomenon in institutions of higher learning, but adoptions of sustainability initiatives into campus life is still an ongoing challenge. Hence, there is a need to continue advocating for integration of sustainability initiatives into campus life. Faculty, students, and staff, with the support of university leadership, are likely to spearhead successful sustainability initiatives on university campuses. Advocating for sustainability and evaluation of implementations of these initiatives on a continuous basis is essential. Hence, we think advocates should utilize creative strategies when accessing institutional resources. That way, with visible positive outcomes, they will gain legitimacy and ultimately lead to institutionalization of sustainability initiatives

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