Research

University students' perceptions on energy sustainability: A focus on Sam Houston State University

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Introduction

In the world that we live, humans face a problem that is growing in urgency every day – energy dependency. The human race faces the problem of running low on natural resources to power our daily lives and the activities that go along with it (Tercek, 2017). With the population of the world expanding every day, we must develop more sustainable practices that don't misuse the natural resources we presently have (Stephens, Hernandez, Roman, Graham, & Scholz, 2008). In 2015, electrical generation in the U.S. was 4 trillion Kilowatt-hours (Kwh), out of which, 33% was generated from coal, 33% from natural gas, 20% from nuclear, 6% from hydropower, 1% was generated from oil, and 7% was generated from renewable sources such as solar, wind, and biomass (EIA, 2016).

There are many ways to overcome the issue of exhausting our natural resources, some of which can be as small as smart consumption in your home and as big as implementing more renewable sources to produce our country's electricity (DECC, 2011). The first step in this process is understanding the perceptions of people concerning sustainable energy. Without this knowledge, people will not know how to improve their future and lives (Read, 2017). The education of future generations concerning sustainability must come from our universities and college campuses. If we can educate college students on how to engage in more sustainable practices, students can carry that information on for the rest of their lives resulting in the expansion of the sustainable energy movement (Cortese, 2003). If this is accomplished, sustainable practices will be second nature to all of our citizens (Uhl & Anderson, 2001). Another reason that colleges and universities need to set the framework for sustainability is due to their ability to reach more people in various areas of study to educate them about energy sustainable practices (Orr, 2012). For our nation to become more energy sustainable we are going to need every citizen to be educated, from liberal arts students to the engineers, and have a voice from every viewpoint to spread the knowledge throughout each student's discipline (Orr, 2012)

Conceptual Framework

To guide this study, researchers utilized the Drivers, Pressure, State of Environment, Impacts, and Responses (DPSIR) framework. The DPSIR is a tool used commonly by decision makers in various environmental aspects to track environmental indicators and to focus on identifying environmental problems that could create policies on environmental sustainability (UNEP, 2006). "For the world to achieve a sufficient level of sustainability, a better understanding of [the] current state of the environment needs to be determined" (Viana, Sant'ana, & Maranhao, 2016, pg. 2). Furthermore, Novacek (2013) noted that for society to achieve sustainability, individuals must start changing their behaviors and lifestyle, and evaluate what is really needed to be consumed. To understand university student behaviors and lifestyles, the foundation of the DPSIR was utilized. Additionally, the concept of Voluntary Simplicity (VS) amongst the millennial generation of university students helped guide this study. VS is a lifestyle choice that acts in the service of dual goals of happiness and ecological sustainability (Kasser, 2009). Additionally, VS typically "involves choosing to live in a manner that is less focused on consumption and acquisition, and more focused on the inward riches of personal

growth, family, community, spirituality, and communion with nature" (Kasser, pg. 178). Research has noted that millennials adopting this VS lifestyle are living in more ecologically sustainable ways that their peers (Elgin, 1993; Pierce, 2000).

Methods

The purpose of this study was to examine the energy sustainability perceptions of students at Sam Houston State University (SHSU) during the fall 2017 semester and determine their personal and professional demographics. The following research questions guided the study: (1) What are SHSU student's perceptions on energy sustainability? (2) What are their personal and professional demographic characteristics? The population for this study were all students at SHSU in the fall 2017 semester (N = 20,898). Based upon recommendations by Krejcie and Morgan (1970), a random sample size of (n = 378) was utilized. A web-based Qualtrics survey was developed that had four sections focusing on their opinions of sustainability. Next, a panel of experts (N = 5) reviewed the instrument for face and content validity, the instrument was then updated, and offered to a pilot test group (N = 15). Upon analysis for reliability, a Cronbach's alpha coefficient of .853 was calculated for the sustainability scale. Based upon data collection recommendations by Dillman, Smyth, and Christian (2009), a 87.57% response rate (n = 331) was achieved. Recommendations by Lindner, Murphy, and Briers (2001, pg. 51) noted that "control of non-response error [is] not necessary when a response rate of 85% is achieved". Therefore, non-response error was not an issue. Data from this study was analyzed using IBM SPSS Statistics 22 based upon the research questions.

Results

On average, students reported that across all eight measures of sustainability, their views of the following topics were only *Somewhat Important* for the following topics: *Being Sustainable* (M = 1.99; SD = .90), *Energy Efficiency* (M = 2.01; SD = .89), *Use of Renewable Energy Sources* (M = 2.20; SD = .976), *Sustainable Procurement* (M = 2.35; SD = .94), *Use of Operating Best Practices* (M = 2.13; SD = .96), *Development of Sustainable Infrastructure* (M = 2.08; SD = .93), *Development of Sustainable Growth Best Practices* (M = 2.12; SD = .95), and *Education of the Public on Sustainable Energy Practices* (M = 2.01; SD = .93).

On average, students were 21 years of age (M = 20.62; SD = 2.99), with the majority of respondents being female (58.0%; n = 192), single (94.9%; n = 314), of white ethnicity (81.6%; n = 270), and having no children (95.5%; n = 316). Most students were also from a rural area (37.5%; n =124), were classified as sophomores (32.3%; n = 107), had a GPA that ranged from 3.3 to 4.0 (42.9%; n = 142), and lived in a house or mobile home (36.6%; n = 121) that was in Huntsville, TX (47.4%; n = 157).

Conclusions, Implications, & Recommendations

Respondents in this study were primarily single, white, females, from a rural setting and classified as collegiate sophomores at a larger regional university in [STATE]. Students' recognition of topics related to sustainable energy usage and procurement as merely "*Somewhat Important*" implies a greater need for basic education in energy conservation and possibly sustainability. This study reinforces the need for an improved mind-set toward energy procurement and conservation amongst university students today. It is recommended that

universities consider teaching best practices in the core curriculum concerning energy production and conservation to students of all levels, and in all majors.

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