17 PUBLIC AWARENESS AND EDUCATION

Tamelyn J. Chipeco

17.1 INTRODUCTION

The main purpose of higher education is to prepare graduates with the knowledge, skills, and ethical responsibility to meet the future workforce needs of society and to participate fully in the new global economy (Chan, 2016). As the conditions of global climate change worsen and as successively more environmental, social, and health problems need to be solved, education institutions must foster awareness and critical thinking in their students (Dyer, G., & Andrews, J., 2011). Therefore, the presence of sustainability in a university’s curriculum is essential for a brighter future on this earth. At Chapman University, students are encouraged to be Global Citizens and understand that a substantial portion of what is learned at college happens beyond the classrooms and laboratories.

Displaying support for environmentalism and sustainability throughout the campus will not only promote more mindful behaviors and practices at school and beyond, but will be an outward portrayal the university’s care for the environment for stakeholders. There are proven methods for environmental messaging that lead to a boost of positive attitudes towards conservation and sustainable behavior, some of which have been studied by Chapman faculty. Additionally, there are resources and conventions already in place at the university to implement public awareness and education on the facilities most efficiently and cost-effectively.

17.2 HISTORY OF SUSTAINABILITY PUBLIC AWARENESS AT CHAPMAN

There are many areas of Chapman in which sustainability awareness and practices are already being promoted. For instance, in the dorms and apartments, there are tools supplied to help students be conscious of their impact such as five-minute shower timers in every bathroom “to reduce water use, especially during the drought” (Sustainability, n.d.), and there is a garden in the Davis Quad for the use and benefit of students. In the dining hall, the “Weigh the Waste” demonstration showing how much post-consumer food waste students create has been carried out every year since at least 2013.

On main campus, there are signs on Big Belly trash receptacles that show the efficiency of the solar powered-compactors, and there are some signs about drought-tolerant plants growing around campus. There are trash receptacles in the student union that ask people to separate their garbage into trash, recycling, and compost, promoting more responsible practices.

Lastly, Environmental Science and Policy audits in 2013 and 2015 contained relevant studies and data. The pioneering audit of 2013 had Curriculum as one of the foci, but the data needs to be updated. The information from the 2015 On-Campus Behavior Change section had a shared goal as this chapter, but only related to air conditioning and clothes-wearing behaviors. This chapter of the Chapman University 2017 Environmental Audit seeks to use this university’s past and present practices and initiatives, while furthering the goal of more and better sustainability curriculum.
17.3 Current Status

17.3.1 Data

As of now, the topic of sustainability is rarely taught outside of the Environmental major and minors, which are some of the smallest programs at Chapman. According to the 2017 Audit survey, the majority of students (about 56%) have never encountered this topic in their upper division classes (See Figure 17.1).

This population of Chapman students is not being educated inside the classroom about sustainability, and according to the results from a question about the effectiveness of events and campaigns, most people feel they are not effectively being reached by public awareness initiatives for sustainability (See Figure 17.2).

To further investigate how to increase public awareness of sustainability issues effectively, data was collected on the optimal mode of communication. The respondents were asked to rank the various media from 1-6, with 1 being “most effective” and 6 as “least effective”. The results are organized by how often each medium was ranked as that number. For example, interactive demonstrations were most often ranked as the “most effective”, with visual demonstrations coming in second as “most effective”, while public art was most often ranked as “least effective” (See Figure 17.3).

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**Figure 17.1 - Responses to the question: “Has sustainability been brought up in any of your upper division courses?”**

**Figure 17.2 - Responses to the question: “In your opinion, how effective have previous Chapman programming events and campaigns been in increasing environmental awareness on campus?”**
From what is gained by this question, the optimal way to promote sustainability would be through interactive demonstrations such as “Weigh the Waste” which takes place in the Randall Dining Hall and allows students to participate in adding to the complied weight of that day’s post-consumer food waste. Unfortunately, this demonstration only lasts about two hours when it is done every semester and has not had a wide impact, according to survey data. Less than half of the respondents had ever seen the demonstration (See Figure 17.4), but of those who did, 80% said it is at least somewhat effective in raising awareness (See Figure 17.5) and 55% claimed it as at least somewhat effective in changing their eating habits (Figure 17.6).

Figure 17.3 - Responses to “In your opinion, which medium of sustainability education is most effective?”
Methods like this interactive demonstration are perceived as being effective, but only if they are seen. Since they do tend to require more time and effort from their coordinators and participants, they cannot be implemented as often or as long as what would behoove the cause.

Many other issues of sustainability such as electricity, water, and paper use are more appropriately addressed with the utilization of visually impactful signs and stickers. Calculations on Chapman University housing were conducted to estimate potential savings in the area of electricity use by heating, ventilation, and air conditioning (HVAC) units (See Table 10.7).

**Table 17.7 - Estimated electricity use and savings. Based on (1) Usage and Demand Summary by Southern California Edison and Dorm, Bed, Bath, Kitchen Count by Facilities Management,**
(2) estimated electricity use from comfort-pro.com, (3) if units are turned off for 1 hour per day, every day, (4) for all 12 months.

<table>
<thead>
<tr>
<th>Total kWh/yr</th>
<th>Average kWh / Month</th>
<th>Total HVAC Units</th>
<th>kWh Saved / Unit / Hour</th>
<th>Total kWh Saved / Hour</th>
<th>Total kWh Saved / Month</th>
<th>Total kWh Saved / Year</th>
<th>% Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,006,528</td>
<td>417,215.17</td>
<td>847</td>
<td>1.4</td>
<td>1,185.8</td>
<td>35,574</td>
<td>426,888</td>
<td>8.53</td>
</tr>
</tbody>
</table>

If students turn off the air conditioners for an average of just one additional hour each day, year-round, the university can save 426,888 kWh per year (How Much Energy Do A.C. Units Use?, 2015). In order to tap into these potential savings, a relevant and salient mode of sustainability education was pursued in this project. Additionally, in an effort to reduce the volume of paper towels used on campus (See Figure 17.8), a message encouraging more sustainable use was also created. The processes of which are documented in the next section of this chapter.

![Image of estimated paper towel use](image_url)

**Figure 17.8** - Estimated paper towel use of three main buildings for the span of one week when (1) a roll is 8.2’’x700’’.

### 17.3.2 Published Research and Case Studies:

Thorough research in communicating environmental values has been and is being done by faculty members and students here at Chapman. Dr. Jake Liang and Dr. Kirk Kee have published multiple scientific research papers in their Strategic Environmental Communications Lab that are informative in the public awareness efforts of this chapter. These include “California water conservation messages”, “Developing and validating the A-B-C framework of information diffusion on social media”, and “Environmental Advocacy”. Their research has found that for effectively communicating water conservation among Californians, citing reputable “Evidence of Drought” followed by “Conservation Tips” created a positive attitude about sustainability (Liang, J., Henderson, L., & Kee, K., 2016). This method was utilized in the all of the proposed messages of this project.

Another source of information obtained through research is from “Communicating the Sustainability Message in Higher Education Institutions”. Conclusions gained from this relevant study are to make messages “clear, precise and coherent, yet tailored to the different contexts of recipients”, and that “developing a distinctive niche for their institution rather than trying to communicate and embed a wide range of strategic agendas is more likely to be successful” (A. Djordjevic, et. al, 2011). These make for clear guidelines for any present or future public awareness initiatives.
17.4 **Relevant Resources at Chapman**

There are resources made available at Chapman with the purpose of improving the campus experience and boost community involvement that were utilized in this project. Taking advantage of what institutions already have to offer increases efficiency and feasibility of potential public awareness initiatives.

17.4.1 **Facilities Management: Signage Requests and Stickers**

Requesting to post official, plastic poster-holders in key places like next to hand dryers and sinks in campus restrooms will allow for signs to be switched out to avoid desensitization and to keep information up-to-date while upholding the precedent of high aesthetic standards of Facilities Management and Campus Planning. Any applicant must fill out a request form (See **Figure 17.9**) in order to proceed in posting. Although this form is usually meant for signage by and for specific departments, and would usually be used by a faculty or staff member, it was the most appropriate means for this process, as more permanent fixtures (plastic holders) are being requested.

![Chapman University Facilities Management Signage Request Form](image)

**Figure 17.9 - Facilities Management Signage Request Form**

Another form of messaging created was in the form of a sticker to place on air conditioning units in Chapman’s residence halls and apartments (See **Figure 17.10**). This sticker was created for free on canva.com. Once submitted, the sticker idea was quickly picked up and pushed forward by Mackenzie Crigger and Facilities Management. It will be placed on HVAC units across all Chapman University housing, expect for Panther Village, as those apartments are
going to be rebuilt following the 2017-18 academic year. To produce a total of 1,000 stickers with a minimum estimated lifespan of 1 year, cost the university a mere $117, making this initiative extremely cost effective for the potential amount of savings to come.

17.4.2 Ideation Lab: Collaboration for Sustainability Signs

![Image of a sticker with the text: Please save energy by turning the air conditioner off when not needed.](image)

**Figure 17.10 – 3x5 sticker on HVAC energy use**

Chapman’s “Ideation lab supports undergraduate and faculty research by providing help with creative visualization and presentation. This help can include creative writing, video, photography, data visualization, and design. Creative Research fellows staff the lab and can help with the presentation of complex communication problems” (Ideation Lab, n.d.). Working with Professor Eric Chimenti to create posters that will be approved and supported by Facilities Management and Campus Planning will establish a system that can be utilized by other students who are interested in continuing this process. To collaborate with the Ideation Lab, a job request form (See Figure 17.11) must be filled out. The first sign request about paper towel use (See Figure 17.12) was also created free on canva.com, with adjustments from the Ideation Lab.
17.4.3 Strategic Marketing and Communication: Digital Signage

One digital slide was created free on canva.com using a statistic from the CA Department of Water Resources (See Figure 17.13).

Figure 17.11 - Ideation Lab Job Request form

Figure 17.12: Sign on sustainable paper towel use

Figure 17.13 - Screengrab of Chapman’s Digital Signage Portal showing “Water Use & Climate Change” slide and corresponding information
The slide was approved to play on the screens of: 1st and 2nd floors of Roosevelt Hall, 1st and 2nd floors of Hashinger Science Center, the Stretch Room and front desk of the Argyros Fitness Center, Argyros Forum Student Union, and the Academic Advising Office and 1st floor lobby of Beckman Hall. It was denied to play on the screens of: 1st and 2nd floor lobbies and basement of Doti Hall, rooms and main area of the Cross Cultural Center, 1st floor lobbies of Buildings 9501 and 9401 at Rinker Campus, the Atrium and Admin Area of Crean Hall, the two 1st floor lobbies of Leatherby Libraries, and the front desk of the Career Center in Beckman Hall (See Figure 17.14).

![Figure 17.14 - Comparison of approval vs. rejection of “Water Use & Climate Change” digital slide](image)

### 17.4.4 Sodexo Dining Services: Digital Display

A series of digital slides were created by Chapman Sustainability and the Ideation Lab (See Figure 17.15) to be shown on the various screens approved through the SMC portal. The same series was pitched and approved to be played on the TV monitors of Randall Dining Hall in a meeting with Eric Cameron and Dustin Fitch of Sodexo Dining Services. The details of how long the slides are going to play were not communicated, but the new location in which they will play will increase their effect on dining habits.

![33 million tons of food makes its way to landfills each year](image)

![ROUcHLY % OF FOOD PRODUCED GETS LOST OR WASTED](image)

In 2010, 33.79 tons of food were wasted, enough to fill the Empire State Building 91 Times

![Approximately 40% of food in the U.S. goes to waste.](image)

Do your part to stop food waste

![In 2010, 33.79 tons of food were wasted, enough to fill the Empire State Building 91 Times](image)
17.5 Conclusions/Characterization

There presently is not sufficient interdisciplinary curriculum for non-environmental students, and an alternative to the longer-term restructuring of course offerings and degree programs is to promote the education and application of sustainability outside of the classroom. There are resources made available for members of the Chapman University community to utilize that make increased public awareness initiatives possible at low-cost/high-impact effects. As Chapman University continues to gain recognition and grow population, it is essential that the community fosters and reflects important values such as environmentalism, stewardship, and sustainability through widespread, public means.

17.6 Recommendations

17.6.1 Low Cost and/or Effort

Create a set series of digital slides using Canva, the Ideation Lab, or other resources to be strategically posted on various TV screens throughout Chapman’s facilities. This method of
public awareness is free and the most expedient because the process requires little participation from the fewest people. A downside to this method is that most TV screens are already inundated with slides, so the frequency at which the information is seen varies, but is very low. Additionally, these screens are often ignored by students and faculty because of the overwhelming amount of information constantly being displayed.

17.6.2 Medium Cost and/or Effort

Design, print, and post physical signage to further educating readers about sustainability to a higher degree of effectiveness. Continued collaboration with the Ideation Lab may ensure approval from Campus Planning & Operations for a smooth process. To save on electricity use, simple yet informative stickers will be applied to every HVAC unit in Chapman’s housing. Again, printing 1,000 of these stickers cost only $117 while the potential savings on electricity are immense. To save on the campus’ paper towel use, the sign in Figure 10.12 is recommended to be placed in high-traffic restrooms on campus. The cost will depend on how many are installed in Chapman’s plastic sleeves, but will remain low the potential savings on paper towels are considered.

Long-term studies of how these messages are impacting resource-use and behaviors on campus and in Chapman housing would further ensure effectiveness and wise use of the university’s resources. Being able to keep track of the quantitative, monetary impacts that result from physical and digital signage with strategic placement will demonstrate the benefits of simple acts of public education. Additionally, following up through surveys with post-graduates who have experienced the sustainability curriculum around campus about how it has affected their thinking and behavior would be informative for decision-makers.

17.6.3 High Cost and/or Effort

To maximize Chapman community involvement in sustainability initiatives, more interactive demonstrations should be put on and for longer periods of time. Examples include “Weigh the Waste” and tabling to promote and giving sustainable items for free such as reusable straws to be used over plastic straws. Administrators should also seek to invest in a long-term/permanent Sustainability Center on main campus that provides resources such as household hazardous waste collection, informational and educational materials, reusable coffee cups, and a small greenhouse.

Another more permanent commitment to sustainability would be to invest in eco-friendly and educational fixtures and campaigns when the new housing infrastructure is built. Some of these permanent additions would be low-flow appliances, completely drought-tolerant landscaping, compost receptacles, solar panels, FSC-certified furniture, and a public monitor/dashboard that displays resources use in real time. Residents and visitors will be immersed in an educational living experience that shows the importance, feasibility, and convenience of sustainability. This recommendation is based on Pepperdine University’s Eden Project. The initiative received $150,000 in grants to retrofit a pre-existing residence hall, and the whole reconstruction took less than a year to complete (Eden Project, n.d.).
17.7 Contacts
Mackenzie Crigger, Sustainability Manager, Professor: crigger@chapman.edu
Kris Eric Olsen, Vice President of Campus Planning & Operations: kolsen@chapman.edu
Facilities Management: (714) 997-6658 / facmgt@chapman.edu
Sustainability Department: (714) 997-7370 / sustainability@chapman.edu
Dr. Kerk Kee, Professor, Environmental Communications Research: (714) 532-6036 / kee@chapman.edu
Strategic Marketing and Communications: (714) 997-6661 / smc@chapman.edu
Eric Cameron: eric.cameron@sodexo.com
Dustin Fitch: dustin.fitch@sodexo.com
Eric Chimenti, Ideation Lab, Associate Professor, Wilkinson College of Humanities and Social Sciences, Wilkinson College of Arts: (714) 997-6807, chimenti@chapman.edu

17.8 References


