

The Culture of Sustainability at Santa Clara University:
A Quantitative Measure and Future Implications

By

Liza Dadiomov

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Abstract

As Santa Clara University (SCU) works to become a leader in sustainability, it is vital to understand the culture of sustainability in the community. A previous study found undergraduate students held a narrow view of sustainability and the university took a misguided approach to promoting sustainability. Do the faculty, staff and graduate students at SCU show a broader understanding of sustainability than undergraduates? What leads to sustainable behaviors? A survey of attitudes, comprehension and behaviors regarding sustainability was distributed to the faculty, staff and graduate students, a total of 511 participants. Respondents defined sustainability narrowly, lacked awareness of the behaviors most effective for achieving sustainability, were mostly influenced by internal motivations, and negatively responded to the word “environmentalism.” Though community members value sustainability, there is no widespread culture of sustainability yet, rather it remains a sub-culture. To establish this culture the university should promote all three dimensions of sustainability, use the word “sustainability” instead of “environmentalism”, avoid reward and punishment methods, expose the impacts of eating habits on sustainability and encourage all members of the community to act.

While Santa Clara University (SCU) has made its commitment to sustainability clear, it is unclear whether this has translated into a culture of sustainability on campus. The university has made progress in its commitment, apparent in measures such as the incorporation of sustainability into the design of new buildings, creation of an urban garden, and implementation of a composting program. During my four years as a student at SCU, I have witnessed these impressive changes but have also been left wondering if sustainability is something the general community has embraced not only as a set of practices but also as an intellectually coherent and intentional set of commitments: in other words, as a culture.

“Culture” has countless definitions (Center for Advanced Research on Language Acquisition, 2010), but the way it is defined for the purposes of this study is: A culture is the community’s shared attitudes, values, goals and practices. A culture of sustainability is observed when a community exhibits a widespread comprehension of sustainability as well as an intentional commitment to support it. Gaining an understanding of this culture will provide insight into how to maximize the effectiveness of university sustainability programs. When studying sustainability on campus, the questions people are currently asking are regarding behaviors such as recycling throughout the campus and energy conservation in the residence halls. Culture, however, is rarely mentioned. To further progress on campus, it is vital to understand where the community stands in its understanding, motivation, and attitudes towards sustainability, and how these internal matters interact with the behaviors that actually occur.

Background

This study is an extension of ongoing research on the culture of sustainability at SCU funded by the Markkula Center for Applied Ethics. In 2008, a qualitative study found that while undergraduate students were aware of the importance of sustainability, there was a general lack

of understanding of the definition of sustainability or of how to behave in more sustainable ways. There was also a misguided approach by the university in reaching out to students regarding environmental issues and solutions as it was assumed that people who do not take sustainable actions are not interested in sustainability (Mooney). In 2009, a quantitative study surveyed undergraduate students and also discovered a misunderstanding of the concept of sustainability, in addition to a misperception of the impacts that different behaviors could have on the environment (Asmar).

For SCU to truly become a leader in sustainability it is important to promote sustainability beyond just the undergraduate students; rather, it must be promoted to the entire population on campus, composed of undergraduate students, graduate students, faculty, and staff. This quantitative study aims to better understand the culture of sustainability at SCU by extending the survey to the rest of the campus community. There are three sections to the study: a statement of its methods, a presentation of its results, and a discussion of its findings.

Methods

Participants

To measure the culture of sustainability, a survey was distributed to the faculty, staff and graduate students at SCU. A total of 511 participants responded to the survey: 73 faculty members (response rate of 7.4%), 125 staff members (response rate of 13%) and 247 graduate students (response rate of 5.2%) (*Faculty/Staff*, 2009; *Students*, 2009).

Of the faculty members, 46% were male and 54% were female. Fifty-three percent were 50 years old or older, 28% were between the ages of 40-50, and the rest were under the age of 40. The majority, 52.1%, has been at SCU for over 10 years, 19.7% have been there between 5-10 years, and 28.3% have been there for less than 5 years. Of faculty members who took the

survey, 67.6% were in the school of Arts and Sciences, 12.7% in the Business School, 11.3% in Engineering, 2.8% in Education and Counseling Psychology, and 5.6% in the Law School. Sixty-one percent of the faculty were either tenured or on the tenure-track, while 39% were not.

Respondents from the staff population were composed of 30.1% males and 69.9% females. Forty-three and a half percent were older than 50, 22.6% were between the ages 40-50, and 33.9% were younger than 40. Thirty-six percent have worked at SCU for more than 10 years, 24.8% have worked there between 5-10 years, and 39.2% have worked there for less than 5 years.

Graduate students were made up of 56.8% males and 43.2% females. Forty-five percent were older than 30, 35.9% were between the ages 24-30 and 18.8% were younger than 24. Out of the schools represented, 35.6% of the graduate students were in Pastoral Ministries, 28.8% were Law students, 19.7% were in Business, 13.3% were in Education and Counseling Psychology, and 2.6% were in Engineering. Nine and a half percent of the graduate students had also completed their undergraduate degrees at SCU while 90.5% had not. Finally, 42.9% of respondents were first-year students, 34.4% were second-year students, 15.2% were third-year students, and 7.6% were fourth-year students.

Procedure

The survey used was designed for the previous study (Asmar, 2009), with the exception of an added section which aimed to capture responses specifically relevant to the older population in this study. The full survey can be found in Appendix A. The survey was posted on SurveyMonkey.com and emailed to the community; the email is in Appendix B. There were three reminders sent out during the four-week period in which the survey was open. Participants completed the survey anonymously. There was a raffle participants could enter to win an iPod

shuffle; they entered the raffle through a separate website to which they were directed at the end of the survey. The letter sent to the raffle winner is in Appendix C.

Question 1: Definition of Sustainability

The purpose of the first question on the survey was to determine how people define “sustainability.” Today, there is no universally accepted meaning of sustainability. However, it is most commonly defined as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations, 1987). Sustainability is also considered to consist of three pillars, which will be referred to throughout this paper as “environment”, “economy” and “social justice.” “Environment” relates to ecology and the physical impacts our actions have on the Earth. “Economy” refers to the effects sustainability measures have on the economy and employment. “Social Justice” refers to equality which is impacted by societal lifestyles and individual choices (Edwards, 2006).

Defining sustainability through these three dimensions creates a broader concept that is appealing to a diverse group of people. Often, environmentalism holds an “us vs. them” mentality. Instead of seeing it as something that applies to everyone or as an issue people can solve together, we are separated into the “tree-huggers” and the “tree-loggers.” This can happen when people define sustainability too narrowly and neglect to think about all three dimensions of the definition (Edwards, 2006; Shellenberger, 2006). This leads to people feeling like outsiders to a movement, when, really, issues of sustainability apply to all.

A vital part of the culture of sustainability is a widespread understanding of what that means. Thus, it is important for the campus community to value all three dimensions of sustainability, and the first question aimed to determine the degree to which this is the case. The measure for this question was designed by the researcher in the previous study (Asmar, 2009).

The task was to rate the relevance of environmental, economic and social items to sustainability on a scale ranging from 1 to 7, 1 being “not at all” and 7 being “very much.” This question aims to unveil how the campus understands sustainability and what obligations people think they have towards the needs of the environmental, economic and social future. The aspect of sustainability that people value the most is likely to guide their actions. These results will help the university to develop programs to which the campus will be the most receptive as well as inform us of which part of the definition must be emphasized more.

Question 2: Importance of Different Behaviors to Achieving Sustainability

Recycling may be the most visible practice on campus that pertains to sustainability, but is it the most impactful behavior? This measure was adapted from a previous study in which behaviors were ranked in order of the most effective in reducing global warming to the least effective (Bonini & Oppenheim, 2008). Question 2 seeks to determine how the campus values certain behaviors linked to sustainability. It also aims to compare these valuations with the actual significance of each behavior in achieving sustainability. Participants were asked to rate the importance of different actions for achieving environmental sustainability. All of the items listed significantly impact sustainability; however, this question can reveal which items people value more. For example, an environmentally-conscious diet is extremely important to achieving sustainability. Even if people do not change their diet, are they at least aware of how important it truly is? The behaviors that people rate as most important can contribute to how they define sustainability and what about it they value the most.

Question 3: Motivation Towards the Environment

Motivation exposes people’s goals and values. Whether members of the campus recycle to impress their peers, to feel good about themselves, or to continue a life-long habit helps to

explain why people support the university's sustainability programs. Question 3 uses the Motivation Towards the Environment Scale (MTES) (Pelletier et al., 1998).

This scale is based on Self-Determination Theory, a psychological model of motivation (Ryan & Deci, 2000). According to this theory there are six types of motivation, which fit on a continuum ranging from “amotivation” to “intrinsic motivation,” or, in other words, from no motivation at all to internally directed motivation. “Amotivation” is characterized by the lack of intention to engage in a behavior, which can be due to feeling incompetent in that behavior, not expecting a desired outcome, or not valuing the behavior. Moving across the scale, the next type of motivation is “external regulation,” which is characterized by receiving rewards for completing an action. “Introjected regulation” is defined by the desire to act in ways which maintain self-esteem. “Identified regulation” is observed when the individual consciously values the behavior and engages in the behavior because it is personally important. “Integrated regulation” occurs when people value a behavior as a part of their very identity. Finally, “intrinsic motivation” is seen when the behavior gives the individual personal enjoyment (Ryan & Deci, 2000). Pelletier and colleagues (1998) devised a 7-point scale applying these types of motivation to environmental behaviors. Results on this question will indicate why campus members choose to support sustainability programs.

Questions 4 and 5: Environmental and Sustainable Contingencies of Self-Worth

The previous scale on motivation addressed the issue of self-esteem in relation to behaviors linked to sustainability. Questions 4 and 5 further explore this relationship by asking participants to rate how being an “environmentalist” or supporting “sustainability” affects their self-esteem. The purpose of these questions was to examine the relevance of the fundamental reality of self-esteem to environmental or sustainable behavior.

The scales used were the Environmental Contingency of Self-Worth (ECSW) and Sustainability Contingency of Self-Worth (SCSW) (Brook, Crocker, Niiya, & Villacorta, 2006). The reason that both scales were used is that there was a concern that people would respond differently to ECSW than to SCSW. The questions in ECSW use the word “environmentalist,” which people may strongly associate with a negative stereotype of bare feet or Birkenstocks. In contrast, SCSW used the word “sustainability.” If people respond significantly differently on these two scales, then it is likely to be attributed to the specific words used. This will provide information about how people on the SCU campus react to the word “environmentalist.”

Question 6: Reported Behaviors

A culture of sustainability will be most apparent when it is exhibited in actions. Question 6 asked participants how often they engaged in various environmental activities. This measure was created by the researcher in the previous study (Asmar, 2009). Some of the items in this question are behaviors that can easily be observed, such as recycling and double-sided printing. However, there are also items that are more difficult to see, including political activism, educating oneself and buying local products. This question aims to reveal individual efforts towards a greater culture. In other words, what are the practices of the SCU community in support of sustainability? The results of this question will indicate which types of behaviors are valued the most by the community. Additionally, by measuring the relationship between these behaviors that are already occurring and the other questions, we can gain information about what internal commitments lead to certain behaviors.

Question 7: Relevance to Professional Life

The final question used a scale developed for the purposes of this study, designed to fit the particular nature of the work of each population - faculty, staff and graduate students. The

previous questions were all aimed at every-day life and personal attitudes. However, since professional life is a significant part of life for the participants of this study, it made sense to add this section.

The main purpose of Question 7 was to understand if people thought their work, teaching, studies or research could contribute to achieving sustainability on campus. Participants were asked to rate from 1 to 7 - 7 being “very much” - how much they agreed with each statement. The statements slightly varied for each of the three populations to fit the nature of each one. If people think that their work or research can contribute greatly to achieving sustainability, then it is likely that they place a high value on sustainability. The university has encouraged faculty to include sustainability in their curricula (Penstemon Project, 2007), among other attempts to promote this in community members’ professional lives. Thus, this question can also indicate how effective these efforts have been.

Duplicates

To ensure that there were no duplicates among the responses, the Internet Protocol (IP) addresses of all survey takers were scanned. Two addresses were found to have three response sets and six were found to have two response sets. However, when these responses were examined, their answers for the questions and demographics differed. It was concluded that these participants had simply used the same computers, for example, in the library. This means all of the responses collected were used in analysis.

Results

To analyze the results of the survey, I used a program called SPSS (Statistical Package for the Social Sciences). The statistics and explanations of the various tests used can be found in

the footnotes. Tables further showing the results are found following the appendices. Results are broken down for each question separately.

Question 1: Definition of Sustainability

I hypothesized that participants would define sustainability in a narrow sense by thinking of each dimension separately and rating environmental items as the most relevant to sustainability, then economic, and finally social. Results verified this hypothesis.

A factor analysis test indicated that there were three categories on Question 1.¹ Items in the first factor, “social justice”, were: Social Justice, Human Rights, Social Equity, Diversity, Ethics, Civic Engagement and Health. Items in the second factor, “environment”, were: Environment, Energy Conservation, Climate change, Long-term approach to global solutions, and Nature. The third factor, “economy”, was composed of: Economic Viability and Economy.

A mean was calculated for each factor to determine which one people thought was the most relevant to sustainability. Participants considered environmental items to be the most relevant to sustainability (M=6.22, SD=1.01), economic items second (M=5.70, SD=1.19) and social items as the least relevant to sustainability (M=5.23, SD=1.34)². I then used a test to see if the three means were statistically significant from one another, which they were, meaning it is unlikely that the differences in means was merely due to chance.³

¹A factor analysis test determines which items correlate with one another. For this question, I used a principal axis factor analysis. Two criteria were used to determine the number of factors to rotate: the scree test and the interpretability of the factor solution. Both criteria indicated three factors, which were then rotated. The rotated solution can be found in Table 1.

²“M” is the mean, which is an average of the responses. “SD” is Standard Deviation and indicates how much variation there is from the mean.

³A one-way repeated measures ANOVA test was used to examine difference among the factor scores. ANOVA determines whether or not differences between certain values are significant or due to chance. Results for this test found that the factor scores differed, $F(2, 1008) = 181.86, p < .001$. The effect size was a partial eta squared of .27, which is moderate. The ANOVA was followed by comparing each factor with each other one using the Tukey HSD test at the .05 level. The three factors were significantly different from one another (all pairwise $ps < .05$).

Question 2: Importance of Different Behaviors to Achieving Sustainability

I hypothesized that the behavior most actively promoted on campus, “recycling cans, bottles and paper,” would be perceived as the most important for achieving sustainability, and the behavior rarely talked about, “eating less beef,” would be perceived as the least important for achieving sustainability. I predicted the rest of the items, which were “buying energy-efficient appliances,” “improving home insulation,” “adjusting thermostat up in the summer, down in the winter,” and “using a fuel-efficient car,” to be perceived as moderately important to sustainability. Results supported my predictions.

As shown in Table 2, means were calculated for each item on Question 2, which asked people about how important each of the environmental behaviors was to achieving sustainability. Table 3 shows participants did not perceive the effectiveness of each behavior accurately. The most effective behavior was “driving a fuel-efficient car,” which participants rated as the fourth most effective. Participants thought “recycling” was the most effective behavior, when in reality it was the fourth most effective. “Eating less beef” was rated as the least important behavior, when it was actually the third most important to achieving sustainability. These results indicate a lack of awareness of which behaviors have the greatest impact on the environment.

Further tests indicated that these were statistically significant differences.⁴ There were two exceptions, which were that the mean-perceived importance of “using a fuel-efficient car” was not significantly different from the mean-perceived importance of “improving home insulation” or “adjusting the thermostat.”⁵ This means that the differences between the mean responses between these items could have been due to chance. Although participants are aware

⁴ One-way repeated measures ANOVA was used to examine differences among the behaviors, and they differed, $F(5, 2485) = 170.58, p < .001$.

⁵ These were tested with a pairwise comparisons test. The mean perceived importance of “using a fuel-efficient car” was not significantly different from the mean perceived importance of “improving home insulation” ($p = .371$) or “adjusting the thermostat” ($p = .128$).

of behaviors that are significant for achieving sustainability, they are not aware of which behaviors are most effective.

Question 3: Motivation Towards the Environment

I hypothesized that the most prevalent motivation type would be “identified regulation,” as that was the result among the undergraduate students (Asmar, 2009). Results supported this hypothesis.

The measure, MTES, is composed of six types of motivations, each one composed of four items. The 24 items were listed in a random order in the question. Means were calculated for each set of items, which can be found in Table 4. “Identified regulation” is the most prevalent, meaning the majority of the community members are motivated to act in environmental ways because sustainability is personally important to them and they highly value the goals of sustainability. “Integrated regulation” was also found to be prominent among participants, meaning many people act in environmental ways because it is a part of who they are and they wish to stay consistent with their identity. The least prevalent motivation type was “amotivation,” meaning few participants lack intention to act in pro-environmental ways. The mean for “external motivation” was also low, meaning few people are motivated by rewards from others. Further tests found statistically significant differences between the means of the types of motivation.⁶ These results suggest that people are aware of sustainability issues and realize they have a role in achieving sustainability, a promising finding for the culture of sustainability.

⁶ One-way repeated measures ANOVA was used to examine differences among the types of motivation, and they differed, $F(5, 2305) = 901.33, p < .001$. A pairwise comparison test indicated that all of the means were statistically significant from each other (all pairwise $ps < .05$).

Question 4: Environmental Contingency of Self-Worth

Based on previous findings of this measure (Asmar, Brook & Graham, 2010), I hypothesized that participants would only moderately base their self-esteem on their environmental behavior and this was supported by results. The means of items 4 and 10 were reversed due to the wording (answers on these two items would indicate an opposite finding than the rest of the items, thus reversing these two values allows all of the items to be placed on the same scale). A mean was then calculated for the whole scale to determine how highly people based their self-esteem on environmentalism. Participants only moderately based their self-worth on environmentalism ($M=3.72$). This finding indicates that people do not base their self-esteem on their environmental behavior.

Question 5: Sustainable Contingency of Self-Worth

I predicted that people would be more likely to base their self-worth on their sustainable behavior than on their environmental behavior due to the possible negative connotations the word “environmental” may have for people. Means were calculated on this 7-point scale, after item 5 was reversed due to the wording (for a similar reason as in the previous scale – to allow all of the items to be placed on one scale). Participants only moderately based their self-esteem on sustainability ($M=3.87$).

Because “environmentalism” can have an extremist connotation to some people, I conducted a paired samples t-test to assess whether people were more likely to admit that they based their self-worth on sustainability than on environmentalism. This hypothesis was supported, as there was a statistically significant difference between the means of ECSW and SCSW⁷. Although it does not appear that this was a large difference, with such a large sample,

⁷ $t(447) = 3.99, p < .001$

the small difference was statistically significant, indicating the words used made a difference in how people responded.

Question 6: Sustainable Behaviors

I hypothesized that participants would participate in behaviors relating to personal, every-day energy-conserving actions the most and those relating to changing their diet the least, which was supported by the results. The behaviors on this scale, in order from the ones reported to occur the most to ones reported to occur the least, fall into four categories: “personal actions,” “civic engagement,” “transportation,” and “diet.” The following are the items that corresponded with each category.

Personal Actions:

- Recycle (paper, cardboard, cans, phone books, etc.)
- Use permanent plates, silverware and coffee mugs instead of disposables
- Take shorter showers
- Use e-mail to cut down on paper usage
- Turn lights off when leaving a room
- Double-sided printing
- Reuse scrap paper as note paper
- Use CFL (compact florescent lights) instead of incandescent light bulbs
- Unplug chargers and appliances when not in use
- Turn water off while soaping my hands, shaving, or brushing teeth
- Wash and dry larger loads of laundry

Civic Engagement:

- Participate in the activities of local environmental groups
- Vote for political figures on the basis of their environmental positions
- Write a letter to a public official or business leader about environmental concerns
- Talk to friends, family, or associates about environmental issues
- Talk to friends, family, or associates about social issues
- Educate myself about environmental issues
- Educate myself about social issues
- Volunteer
- Participate in organizations focused on social justice
- Participate in organizations focused on diversity
- Participate in organizations focused on the environment

- Buy fairly traded products (coffee, chocolate, rice, etc.)
- Buy local products
- Donate re-usable goods to those in need (food drives, Goodwill, cell phone emergency re-use programs)

Transportation:

- Minimize travel by car
- Use public transit (bus, trains) instead of cars
- Walk or bike instead of using car or public transit

Diet:

- Eat less beef
- Eat less poultry
- Eat less fish
- Eat less dairy

To analyze this scale, I used a factor analysis test, which indicated four factors, or categories.⁸ Two items, “air drying clothes” and “unplugging chargers and appliances when not in use,” were categorized with the items in the “transportation” factor. Since these were unrelated to “transportation”, they were discarded.⁹ With these two items discarded, the four aforementioned factors remained.

“Civic Engagement” relates to education and participation in environmental organizations. “Personal Actions” consist of behaviors participants could partake in during their every-day lives to conserve energy, such as recycling and taking shorter showers. “Diet” includes items on changing eating habits, such as reducing beef consumption. “Transportation” items relate to using public transit or minimizing travel by car.

A mean was calculated for each factor, as shown in Table 6. As predicted, respondents participated in “Personal Actions” the most and “Diet” the least. Further tests found statistically

⁸ A principal axis factor analysis was conducted. The number of factors was determined using the scree test and interpretability of the factor solution. Using a cut-off point of .30, it was determined that there were four factors, which were then rotated. The rotated solution is shown in Table 4.

⁹ These two items loaded less than .30, which was the cut-off point.

significant differences between the types of behaviors, meaning the differences between the four categories were not due to chance.¹⁰

Question 7: Relevance to Professional Life

I hypothesized that participants would not find sustainability to be highly relevant to their professional lives, which was rejected by the results. Since the items were slightly modified for each population, means were calculated separately for faculty, staff and graduate students. The means are shown in Table 7. Participants found sustainability to be moderately relevant to their professional lives. Due to the differences in wording for each population, the means were not compared statistically. This result suggests participants place a high value on sustainability, thinking about it not only at home or in the car, but also at work and school.

Correlations

The last data analysis I conducted was to test if there was a relationship between peoples' attitudes, values, and goals and the behaviors in which they actually engaged. In other words, what led to behaviors? To explore this, I tested for correlations between each question on the survey and Question 6 (Reported Behaviors). These results can all be found in Table 8.

As previously reported, the behaviors already occurring were categorized into four types: "Personal Actions," "Civic Engagement," "Transportation," and "Diet." The following are some of the notable results found by examining the relationships between the behaviors and the internal matters of culture.

"Personal Actions" are negatively correlated with "amotivation" and "external motivation." This means that people who are not motivated to act in sustainable ways or are motivated mostly by external rewards are less likely to engage in everyday energy-conserving

¹⁰ One-way repeated measures ANOVA was used to examine differences among the types of behaviors, and this indicated significant differences, $F(3, 1302) = 385.81, p < .001$. A pairwise comparison test indicated that all of the means were statistically significant from each other (all pairwise $ps < .001$).

personal behaviors. Other internal matters were found to have positive correlations with “personal actions.” A probable reason for this is that people reported engaging in this behavior the most, so there are multiple motivations, goals and beliefs that lead to this behavior.

“Civic Engagement” behaviors are positively related with “integrated motivation,” meaning those who are mostly motivated to act in sustainable ways because they see sustainability as a part of their identity are likely to participate in “civic engagement” behaviors. People who base their self-esteem on environmental or sustainable behavior are also likely to report these behaviors. Finally, participants who find sustainability relevant to their professional lives also report “civic engagement” behaviors.

“Transportation” and “diet” behaviors are reported to occur the least on the SCU campus, so it was important to examine what does lead to these actions. People who are mostly motivated by “intrinsic” or “integrated” motivation types, report driving less as well as using public transportation and walking more. This implies that those who act in sustainable ways because it brings them pleasure or it is a part of the individual’s identity are more likely to change their transportation habits. Those exhibiting “intrinsic” and “integrated” motivations were also more likely to change their eating habits. “Diet” behaviors also had a positive relationship with people perceiving “eating less beef” to be important for achieving sustainability. Finally, participants who base their self-esteem on their environmental or sustainable behaviors are also more likely to alter their eating habits to better the environment.

Discussion

Through this research, I sought to examine the culture of sustainability at SCU. The overall finding was that despite the massive progress occurring, there is only a subculture of sustainability. There is not yet a general culture of sustainability at SCU, if we assume that such

a culture would be animated by a widespread understanding of sustainability as well as an intentional commitment to the behaviors most effective in supporting sustainability. Analysis of the results indicates that although people seem to value sustainability, there is still a general lack of understanding of the concept as well as a misperception of the behaviors that are most important to sustainability. The results also suggest which attitudes, motivation, and beliefs lead to sustainable behaviors. The following are implications of the most notable results.

Narrow Definition of Sustainability

Participants rated the environment, economy and social justice as highly relevant to sustainability. However, sustainability still seems to be defined narrowly, as people emphasize environment and ecology, but downplay economic and social factors. The terms “sustainability” and “environment” are often used interchangeably. However, environment is just one part of sustainability, economics and social items being the other two parts. A reason for this may be that environmental issues in our society are not presented as interdisciplinary, despite the fact that they are multi-faceted and affect not only ecology but also the economy and society. Barry Commoner, an influential environmentalist, described this reductionist thinking as being a problematic issue for the environmental movement (Commoner, 1971). People hear “sustainability” and think of the environment, rather than taking a step back and looking at the big picture, which includes much more.

This may be reflective of how sustainability has been presented to the campus community. For example, SLURP (Sustainable Living Undergraduate Research Project) is a community in an SCU residence hall which brings together people interested in sustainability to live together and conduct research on sustainable living. It is a community that works to reduce its members’ daily impacts on the environment. However, looking at it more broadly, SLURP

has a strong social component to it, as it is just as much about living together and building a community as it is about bettering the environment. Moreover, SLURP residents experience an economic effect by the money they save through the lifestyles encouraged by the community. The social and economic aspects of SLURP are rarely talked about, however, as the environmental focus is emphasized.

The way that people define sustainability affects the behaviors they choose to engage in. When people define sustainability narrowly, they are unlikely to think they are making a difference when engaging in an action relating to social or economic factors that are aimed toward a sustainable future. Additionally, we tend to be weary and cautious of concepts we do not understand. Thus, people may be turned away from joining the efforts towards more sustainable living because they do not really understand what that means.

Lack of Awareness of Effective Behaviors

A comparison of the behaviors people perceived to be most important for achieving sustainability with their actual impacts showed a lack of awareness of the behaviors that are the most significant for sustainability. People thought recycling would have the greatest impact on sustainability, when in reality the beneficial impacts of driving a fuel-efficient car are much greater. Recycling is promoted so much that people automatically assume that it is the most significant action they can do.

Another significant disconnect was regarding the impacts eating habits have on the environment. Participants were asked to rate how important eating less beef was to achieving sustainability as well as to rate which eating habits they were changing for the environment. People did not report attempting to lessen their consumption of meats. They also did not think that eating less beef was very significant for achieving sustainability. The reality is that the

production of beef has a huge impact on the environment; some would even argue that it is one of the most significant impacts (Bonini & Oppenheim, 2008). The relationship between diet and sustainability is not a subject commonly talked about. Again, this may be a matter of reductionist thinking, as people do not think about the wider impacts of eating. Eating is a very personal behavior, and something that brings us not only sustenance but also great pleasure. We meet up with friends over lunch, students are overjoyed when free food is provided at any event, and people often pride themselves on their cooking. Many activists, such as Michael Pollan (2006), have written about how we have lost our connection to our food, as we no longer see where it truly comes from. This is likely to be another reason for the lack of concern about diet. The creation of the BUG (Bronco Urban Garden) program can help close the gap for the community and show people where some of their food comes from, what the inputs contributing to its production are, and how such foods and inputs are related to sustainability.

Internal Motivation Instead of External Motivation

People claimed to be mostly motivated to act in ways promoting sustainability because they thought this was consistent with their identities. This means that people thought their sustainable living behaviors have already become habits in their daily lives. This can help the university design programs accordingly. Providing external rewards or punishments to promote sustainable behavior is not very effective on the SCU campus because so few people are externally motivated. Sustainability programs should be presented as behaviors consistent with what people are already doing. Motivating others is something that psychologists have studied for many years and it remains a difficult task. However, these results indicate the subtle strategies the university can take. Instead of presenting sustainable living measures as ones that

will lead to rewards or praise, they should be presented as behaviors that are personally important to individuals as well as ones that SCU community members are already doing.

What are people already doing?

Few participants reported changing their transportation or eating habits to achieve sustainability. The actions people are doing relate to every-day energy conservation measures as well as civic engagement. Every-day actions are the ones that are promoted the most around the SCU campus. These include behaviors like recycling, printing double-sided pages, and taking shorter showers. Not only do we hear about these actions often around our campus, but these are behaviors we are encouraged to participate in by the media and marketing measures. Civic engagement behaviors include ones such as educating oneself or others about environmental issues and volunteering. As a Jesuit University focused on social justice and education, community members may already participate in civic engagement at relatively high rates.

Transportation habits may be difficult for this population to change because most faculty, staff, and graduate students live off-campus and often drive to campus. Transportation is often a behavior people are reluctant to alter because of convenience matters. It is much faster and more convenient to drive rather than rely on public transportation, biking or walking. SCU's location in a suburban area may also contribute to a reluctance to change transportation habits.

Behaviors related to eating are the least prominent actions on the campus. As previously discussed, there is a lack of awareness of the impact diet really has on sustainability. Results showed that people who did think eating less beef was highly important were also the people who reported changing their eating habits more. This indicates that awareness and education can lead to behavior changes.

Additionally, the people who do change their transportation or eating habits are influenced mostly by “intrinsic” and “integrated” motivations. This means that those who receive pleasure from sustainable behaviors or see it as a part of their identity are the ones to participate in the most difficult behavioral changes. Anyone can throw their plastic bottle in the recycling bin, but those who have a higher dedication to sustainability are also more likely to sacrifice the convenience of driving or limit the amount of meat they eat.

Negative Perception of “Environmentalism”

Another interesting finding regarding how people define sustainability was that even though people thought that the environment was the most important part of sustainability, they also held negative connotations of the word “environmentalist.” People were more likely to base their self-esteem on their sustainable behavior than on their environmental behavior. Even though people may value “environmentalism,” they may still be weary of programs using this word due to the negative stereotypes associated with being an environmentalist.

Suggestions

Currently, it appears that sustainability, as a movement on campus, is not inclusive of the entire population. To include more people and really appeal to the community’s values, motivations and goals, the university should consider the following five suggestions:

1. Whenever sustainability programs are promoted, all three dimensions of sustainability (environment, economy, and social justice) should be addressed and emphasized equally.
2. The word “sustainability” should be used rather than “environmentalism.”
3. Reward systems in which people are given incentives or prizes for their sustainable behaviors should be avoided when promoting sustainability. Instead, programs should

point out how sustainable behaviors are personally significant to the individual and the community as well as being a part of the individual or community identity.

4. The impact of eating habits on the environment should continue to be promoted through dining services. Encouraging more people to visit and volunteer in the urban garden, The Forge, can also be a helpful tool to show people the connection between their food and its impact on sustainability.
5. Change must come from all community members: undergraduate and graduate students, faculty, and staff. All four groups contribute to the culture of sustainability on campus and can play pivotal roles in implementing change.

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Appendix A: The Survey

1. Using the scale below, indicate to what extent you consider each of the following to be an aspect of sustainability:

1	2	3	4	5	6	7
Not at all			Moderately			Very much
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
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<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						

2. Using the scale below, rate the importance of each of the following actions for achieving environmental sustainability:

1	2	3	4	5	6	7
Not at all			Moderately			Very important
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						

3. Using the scale from 1-7 below, please indicate the degree to which the proposed reasons correspond to your reasons for doing environmentally-sustainable behaviors.

1	2	3	4	5	6	7
Not at all			Moderately			Very much

- ___ 1. For the pleasure I experience while mastering new ways of helping the environment.
- ___ 2. Honestly, I don't know; I truly have the impression that I'm wasting my time doing things for the environment.
- ___ 3. For the pleasure I experience when I find new ways to improve the quality of the environment.
- ___ 4. Because it is a reasonable thing to do to help the environment.
- ___ 5. Because I like the feeling I have when I do things for the environment.
- ___ 6. I don't know really; I can't see what I'm getting out of it.
- ___ 7. I think I'd regret not doing something for the environment.
- ___ 8. I wonder why I'm doing things for the environment; the situation is simply not improving.
- ___ 9. For the pleasure I get from contributing to the environment.
- ___ 10. Because it's a sensible thing to do in order to improve the environment.
- ___ 11. Because it's a way I've chosen to contribute to a better environment.
- ___ 12. Because other people will be upset if I don't.
- ___ 13. For the recognition I get from others.
- ___ 14. Because I would feel bad if I didn't do anything for the environment.
- ___ 15. Because taking care of the environment is an integral part of my life.
- ___ 16. Because my friends insist that I do it.
- ___ 17. Because it seems to me that taking care of myself and taking care of the environment are inseparable.
- ___ 18. Because I would feel guilty if I didn't.
- ___ 19. Because being environmentally-conscious has become a fundamental part of who I am.
- ___ 20. Because it is part of the way I've chosen to live my life.
- ___ 21. Because I would feel ashamed of myself if I was doing nothing to help the environment.
- ___ 22. Because I think it's a good idea to do something about the environment.
- ___ 23. To avoid being criticized.
- ___ 24. I don't know; I can't see how my efforts to be environmentally-conscious are helping the environmental situation.

4. Please respond to each of the following statements using the scale below. If you haven't experienced the situation described in a particular statement, please answer how you think you would feel if that situation occurred.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Disagree somewhat	Neutral	Agree somewhat	Agree	Strongly agree

- ___ 1. My self-esteem is influenced by how good or bad an environmentalist I am.
- ___ 2. Supporting environmental causes gives me a sense of self-respect
- ___ 3. I feel badly about myself when I think about how my lifestyle hurts the environment.
- ___ 4. My opinion about myself isn't tied to being an environmentalist.
- ___ 5. My self-esteem gets a boost when I feel like a good environmentalist.
- ___ 6. My self-esteem drops if I feel like a bad environmentalist.
- ___ 7. Being an environmentalist is related to my sense of self-worth.
- ___ 8. I feel better about myself when I know I'm taking action to benefit the environment.
- ___ 9. When I am not able to help environmental causes, my self-esteem suffers.
- ___ 10. My overall opinion of myself is unrelated to how good or bad an environmentalist I am.

5. Please respond to each of the following statements using the scale below. If you haven't experienced the situation described in a particular statement, please answer how you think you would feel if that situation occurred.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Disagree somewhat	Neutral	Agree somewhat	Agree	Strongly agree

- ___ 1. Working toward sustainability gives me a sense of self-respect.
- ___ 2. I feel badly about myself when I think about how unsustainable my lifestyle is.
- ___ 3. My self-esteem drops if I feel like my lifestyle is unsustainable.
- ___ 4. I feel better about myself when I know I'm taking action to increase the sustainability of my lifestyle.
- ___ 5. My overall opinion of myself is unrelated to how sustainable my lifestyle is.

6. Indicate the extent to which you engage in each of the following activities by assigning the appropriate number from the scale below. Please be honest.

1	2	3	4	5
I never do this		I try to do this		I always do this

- ___ Recycle (paper, cardboard, cans, phone books, etc.)
- ___ Use permanent plates, silverware and coffee mugs instead of disposables
- ___ Take shorter showers
- ___ Use e-mail to cut down on paper usage
- ___ Turn lights off when leaving a room
- ___ Participate in the activities of local environmental groups
- ___ Vote for political figures on the basis of their environmental positions
- ___ Buy fairly traded products (coffee, chocolate, rice, etc.)
- ___ Double-sided printing
- ___ Reuse scrap paper as note paper
- ___ Use CFL (compact florescent lights) instead of incandescent light bulbs
- ___ Unplug chargers and appliances when not in use
- ___ Wash clothes in colder water (warm instead of hot, or cold instead of warm)
- ___ Turn water off while soaping my hands, shaving, or brushing teeth
- ___ Wash and dry larger loads of laundry
- ___ Air dry clothes
- ___ Buy local products
- ___ Eat less beef
- ___ Eat less poultry
- ___ Eat less fish
- ___ Eat less dairy

- Write a letter to a public official or business leader about environmental concerns
- Talk to friends, family, or associates about environmental issues
- Talk to friends, family, or associates about social issues
- Educate myself about environmental issues
- Educate myself about social issues
- Minimize travel by car
- Use public transit (bus, trains) instead of cars
- Walk or bike instead of using car or public transit
- Volunteer
- Participate in organizations focused on social justice
- Participate in organizations focused on diversity
- Participate in organizations focused on the environment
- Donate re-usable goods to those in need (food drives, Goodwill, cell phone emergency re-use programs)

7. What is your gender?

- Female
- Male

8. What is your age?

- 16 or younger
- 17
- 18
- 19
- 20
- 21
- 22
- 23 or older

8. What is your academic class?

- First-year student
- Second-year student
- Third-year student
- Fourth-year student
- Fifth-year student

9. What school are you in?

- Arts & Sciences
- Business
- Engineering

10. What is your major(s)/minor(s)?

Faculty

Using the scale below, please indicate the degree to which you agree with each statement.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Disagree somewhat	Neutral	Agree somewhat	Agree	Strongly agree

1. It would be very difficult to incorporate sustainability into my teaching.
2. My area of expertise has a great deal to contribute to sustainability.
3. My research has nothing to do with sustainability.
4. Incorporating sustainability into my professional life is very important to me.
5. My research can produce a greater understanding of sustainability.

Staff

Using the scale below, please indicate the degree to which you agree with each statement.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Disagree somewhat	Neutral	Agree somewhat	Agree	Strongly agree

1. Incorporating sustainability into my professional life is very important to me.
2. I don't know how my work could contribute to sustainability.
3. The work I do at the university has a great deal to contribute to sustainability.
4. It would be very difficult to incorporate sustainability into my work.
5. I believe that my job easily applies to sustainability.

Graduate students

Using the scale below, please indicate the degree to which you agree with each statement.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Disagree somewhat	Neutral	Agree somewhat	Agree	Strongly agree

1. It would be very difficult to incorporate sustainability into my area of study.
2. My area of study has a great deal to contribute to sustainability.
3. The area that I study has nothing to do with sustainability.
4. Incorporating sustainability into my professional life is very important to me.
5. My area of study can produce a greater understanding of sustainability.

Faculty

1. What is your gender?

Female

Male

2. What is your age?
 18-30
 30-40
 40-50
 50 or older
3. How long have you been at SCU?
 Less than 1 year
 1-3 years
 3-5 years
 5-7 years
 7-10 years
 10 or more years
4. What school are you in?
 Business
 Engineering
 Arts and Sciences
 Education and Counseling Psychology
 Law
 Pastoral Ministries
 Theology
5. Do you conduct research in addition to your?
 Yes
 No
6. Are you a tenured professor?
 Yes
 No
7. What is your department?

Staff

1. What is your gender?
 Female
 Male
2. What is your age?
 18-30
 30-40
 40-50
 50 or older
3. How long have you been at SCU?
 Less than 1 year
 1-3 years
 3-5 years
 5-7 years
 7-10 years
 10 or more years

4. What is your department or workplace?

Graduate Students

1. What is your gender?

Female

Male

2. What is your age?

21 or younger

21 - 24

24- 27

27 - 30

30 or older

3. What school are you in?

Business

Engineering

Education and Counseling Psychology

Law

Pastoral Ministries

Theology

4. What is your academic class?

First-year student

Second-year student

Third-year student

Fourth-year student

5. Did you complete your undergraduate degree at SCU?

Yes

No

6. Do you conduct research in addition to your studies?

Yes

No

7. What is your degree?

Appendix B: Invitation by Email

Want to help SCU become more sustainable?

Need a reason to procrastinate for a few minutes?

Want a chance to win a free iPod Shuffle?

Please take our survey about sustainability at Santa Clara University. The survey is completely anonymous and if you choose to participate you will be entered into a raffle to win an iPod shuffle!

The results of the survey will be used by the Office of Sustainability and the Markkula Center for Applied Ethics to understand what SCU graduate students, faculty and staff think about sustainability. The results will also be presented to the university to help SCU become a leader in sustainability. A report about the survey will be posted on the ethics website as part of a project for the Environmental Ethics Fellowship.

Participation in the survey will be considered consent to the use of anonymous survey results.

If you have any questions or concerns please contact Liza Dadiomov, Environmental Ethics Fellow, at edadiomov@scu.edu or David DeCosse, Director of Campus Ethics Programs, at DDeCosse@scu.edu or (408) 554-5715.

Thank you for your participation.

Sincerely,

Liza Dadiomov

Environmental Ethics Fellow
Markkula Center for Applied Ethics
edadiomov@scu.edu

Appendix C: Raffle Letter

Raffle

At the end of the survey, participants were told that raffle contact information was kept separate from their survey responses. If they wished to participate in the raffle, they were directed to another page on the Santa Clara University Sustainability website where they were asked for their name and e-mail address.

Once the survey period was over, all raffle participants were listed in an Excel spreadsheet. Duplicates were deleted. Using Excel's random function, the person at the top of the randomized list was chosen as the raffle winner and then notified via e-mail and asked to pick up the iPod from the Markkula Center for Applied Ethics.

Notification e-mail

Dear <winner>,

Congratulations! You have been selected as the winner of the iPod Shuffle! Thank you again for participating in the Sustainability Survey. You are welcome to pick up your iPod at any time from the Ethics Center located in the Arts and Sciences building. Please ask for David DeCosse, and if he is not there, then just ask about the iPod Shuffle to receive it.

Thank you again and let me know if you have any questions!

Cheers,

Liza Dadiomov

Environmental Ethics Fellow

Table 1
Definition of Sustainability Factor Analysis

	Factor		
	Social	Environmental	Economic
Social justice	.90	-.003	-.01
Human rights	.90	-.04	.04
Social equity	.87	.05	-.01
Diversity	.82	-.05	-.09
Ethics	.57	.09	.21
Civic Engagement	.51	.05	.31
Health	.48	.23	.14
Environment	-.10	.93	.02
Climate Change	.17	.79	-.21
Energy conservation	-.04	.78	.08
Long-term approach to global problems	.04	.68	.12
Nature	-.02	.67	.11
Economic viability	.05	.08	.73
Economy	.07	.03	.72

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Table 2

Mean responses of the perceived importance of the effectiveness of environmental behaviors

	N	Mean	Std. Deviation
Recycling cans, bottles and paper	507	6.18	1.21
Buying energy efficient appliances	506	6.09	1.14
Improving home insulation	506	5.97	1.22
Using a fuel efficient car	505	5.92	1.34
Adjusting thermostat up in the summer, down in the winter	506	5.86	1.25
Eating less beef	503	4.60	1.94
Valid N (listwise)	498		

Table 3

Comparison of the actual effectiveness of behaviors to the perceived effectiveness

Actual Effectiveness	Perceived Effectiveness
1. Driving a fuel efficient car	1. Recycling
2. Improving home insulation	2. Using energy-efficient appliances
3. Eating less beef	3. Improving home insulation
4. Recycling	4. Driving a fuel-efficient car
5. Using energy efficient appliances	5. Adjusting thermostat
6. Adjusting thermostat	6. Eating less beef

Table 4

Mean responses of motivation types

	N	Mean	Std. Deviation
Amotivation	467	1.81	1.18
External	464	1.98	1.17
Introjected	465	4.35	1.67

Intrinsic	469	4.53	1.55
Integrated	468	5.08	1.42
Identified	467	5.67	1.15
Valid N (listwise)	462		

Table 5
Factor analysis of reported behaviors

	Civic Engagement	Personal	Diet	Transportation
Participate in organizations focused on social justice	.78	-.17	.04	.04
Talk to friends, family or associates about social issues	.73	.07	-.11	.01
Educate myself about social issues	.69	.17	-.19	.03
Participate in organizations focused on diversity	.68	-.10	.07	.02
Participate in organizations focused on the environment	.67	-.07	.10	.13
Talk to friends, family or associates about environmental issues	.62	.09	.00	.10
Participate in the activities of local environmental groups	.56	-.12	.24	.15
Educate myself about environmental issues	.55	.16	-.03	.03
Vote for political figures on the basis of their environmental positions	.49	.16	.04	.00
Volunteer	.44	-.03	.16	-.12
Buy fairly traded products (coffee, chocolate, rice, etc.)	.41	.18	.23	.07
Write a letter to a public official or business leader about environmental concerns	.41	-.14	.30	.17
Buy local products	.30	.22	.19	.11
Recycle (paper, cardboard, cans, phone book, etc.)	.12	.68	-.17	-.08
Turn lights off when entering a room	-.08	.61	-.04	.07
Use permanent plates, silverware and coffee mugs instead of disposable ones	.02	.59	-.08	.13
Wash and dry larger loads of laundry	.04	.58	-.03	-.02
Use e-mail to cut down on paper usage	.01	.54	.11	-.08
Turn water off while soaping my hands, shaving or brushing teeth	-.01	.51	.06	.12
Reuse scrap paper as note paper	-.02	.51	.12	.01

Use CFL instead of incandescent light bulbs	.04	.45	.06	.04
Donate re-usable goods to those in need (food drives, Goodwill, cell phone emergency re-use programs)	.36	.43	-.09	-.13
Wash clothes in colder water (warm instead of hot, or cold instead of warm)	.05	.41	.20	-.06

	Civic Engagement	Personal	Diet	Transportation
Take shorter showers	-.02	.34	.29	.07
Double-sided printing	.00	.31	.15	.09
Eat less poultry	.06	-.01	.74	.07
Eat less fish	.02	.05	.73	-.03
Eat less beef	.15	.15	.58	-.031
Eat less dairy	.12	-.01	.51	.07
Air dry clothes	-.00	.11	.25	.19
Use public transit (bus, trains) instead of cars	.11	-.13	-.06	.85
Walk or bike instead of using car or public transit	.06	.04	-.03	.77
Minimize travel by car	-.01	.26	.08	.56
Unplug chargers and appliances when not in use	.06	.21	.20	.22

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Table 6
Mean responses of reported behaviors

	N	Mean	Std. Deviation
Personal Actions	437	3.96	.61
Civic Engagement	436	3.01	.74
Transportation	437	2.83	1.01
Diet	435	2.45	1.04
Valid N (listwise)	435		

Table 7
Relevance of sustainability to professional life

	Mean
Staff	5.18
Graduate students	4.88
Faculty	4.61

Table 8
Correlations between behaviors and other aspects of culture

	Diet	Transportation	Civic Engagement	Personal Actions
Definition of Sustainability				
Environmental	.19**	.12*	.34**	.29**
Economic	.10*	.02	.21**	.18**
Social	.24**	.10*	.43**	.26**
Perceived Importance of Behavior				
Buying energy efficient appliances	.14**	-.03	.15**	.25**
Improving Home Insulation	.18**	.04	.16**	.23**
Adjusting thermostat up in the summer, down in the winter	.18**	.00	.17**	.26**
Recycling cans, bottles and paper	.10*	-.06	.12*	.24**
Using a fuel efficient car	.18**	.02	.18**	.19**
Eating less beef	.51**	.17**	.39**	.30**
Motivation				
Intrinsic	.24**	.17**	.37**	.28**
Amotivation	-.06	-.05	-.12*	-.23**
Identified	.17**	.07	.34**	.36**
Introjected	.08	-.01	.19**	.16**
External	.03	.02	-.01	-.15**
Integrated	.30**	.23**	.53**	.42**
Self-Esteem				
ECSW	.33**	.20**	.40**	.25**
SCSW	.30**	.16**	.36**	.27**
Relevance to Professional Life				
Faculty	.27*	.19	.59**	.12
Staff	.10	.18	.33**	.28**

Graduate Students	.25**	.16*	.34**	.29**
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**Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).