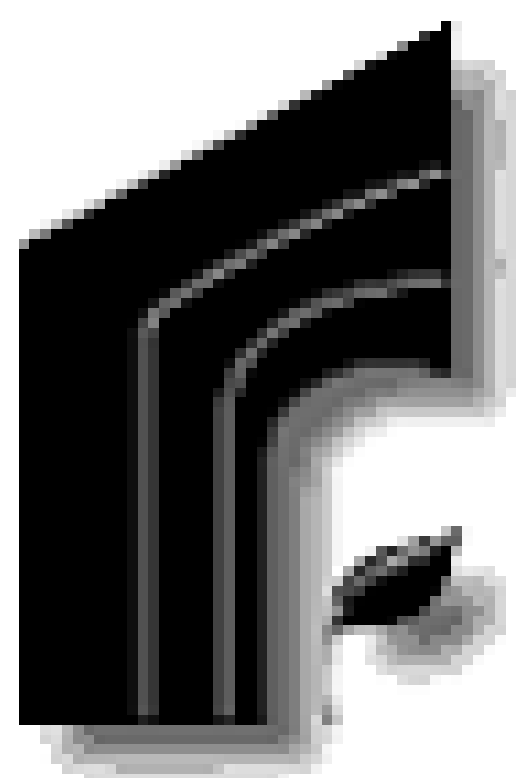


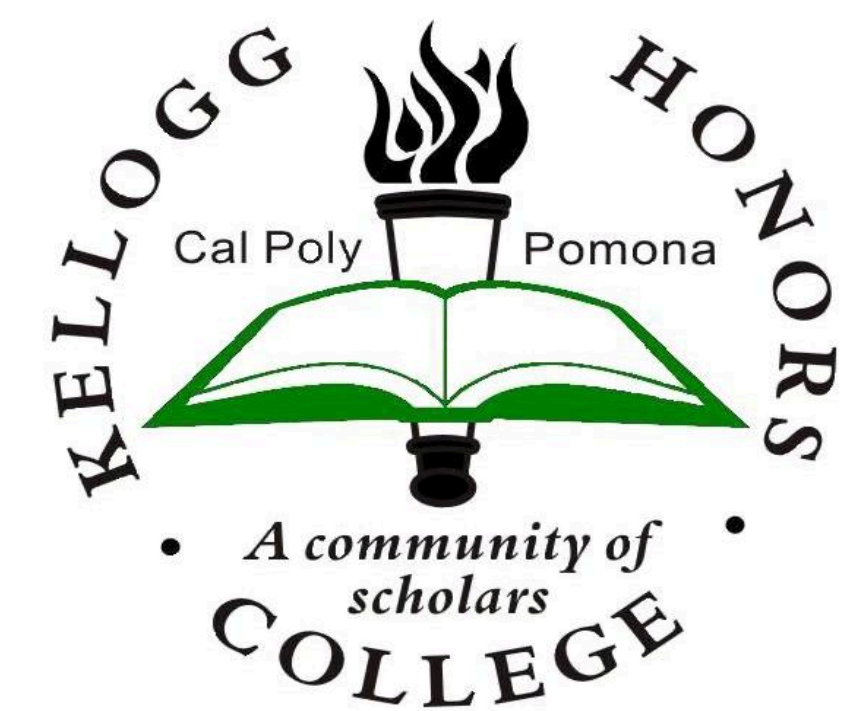
Perceptions of Sustainability in University Students at California Polytechnic University Pomona



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Kellogg Honors College Capstone Project



Introduction

Sustainability is a hot button topic in many fields today. While sustainability is an important concept, it is marketed by companies to such an extent that it has lost all meaning to many individuals. The word is viewed by many as nothing but jargon. With the constant barrage of the word "sustainable" being used to describe just about every conceivable product being sold, how do people view sustainability today? This study was designed to determine how confident college students at California Polytechnic University Pomona feel about their own opinions of sustainability, while also trying to determine what they think is or isn't sustainable. In order to gain some insight into how each college approaches sustainability, I emailed the dean of each college requesting a brief description of what sustainability meant to them and their college. I received three responses from the Deans of engineering, agriculture, and education. Below are two of the three responses received:

Joseph Rencis, Dean of College of Engineering:

"I have not had a chance to obtain feedback from our college.

Personally, sustainability is being able to meet the needs of today without sacrificing the ability of future generations to meet their needs.

Hope this helps. Have a nice weekend."

Jeff Passe, Dean for the College of Education & Integrative Studies:

"Sustainability is a passion of mine and of several members of my faculty. We believe that educators have a special role to play in developing policies and behavior that will maintain the healthy survival of biological systems and processes. We have an obligation to educate our students but also those we will teach and serve to meet that goal."

Dean Rencis's response was a concise definition that I have heard resonate through the words of many students who took my survey. It summed up the pragmatic view of sustainability perfectly. The definition Dean Passe gave contained intentional choice of vocabulary which begged the thought that he is a systems thinker. His response was short and concise, yet his words exhibited a depth of thought that would resonate through my mind as I conducted this study. While I can't say that the three replies I received were representative of all colleges, they did run the gambit of responses that I was expecting. How do these perspectives of sustainability effect the way sustainability is being taught at Cal Poly? How is this information being received by the students? The intention of this study was to gain some insight into these questions.

Survey Design & Methods

Initially, I had imagined giving students a test to evaluate how much they knew about sustainability. My first meeting with Professor Yuhasz helped me see the futility in this endeavor, and directed me towards the implicit association test. He showed me different pamphlets, pictures, and advertisements that depicted "sustainability" and asked me what made them sustainable. The ensuing conversation would span over several weeks. In the end, we decided I would run an implicit association test containing words and images that one might take as "sustainable" or "unsustainable." I went through well over 100 words and images before deciding upon the 50 that would make up the survey. Participants were asked if a given slide was sustainable, and were given the response options of "yes", "no", and "it depends". In order to get their first reaction to each slide, participants were only given a few seconds on each slide during the first pass of the survey. Every ten slides they were given a few moments to make sure they were still on the correct slide number before we continued on. The second pass had four concepts per slide, allowing participants to take as much time as they needed to discuss and think out their response for each. Each individual's initial response was compared to their second response



Figure 1. The first slide presented to participants. This was the only slide to have a 100% yes response rate on the second pass.

and changes in response were counted as "indecision points." While the surveys were all anonymous, each survey also requested participant parameters including major, college associations, economic background, strength of cultural identity, time spent outdoors, time spent watching tv, age first introduced to sustainability, and whether or not participants were concerned about sustainability. These parameters were used as points of comparison to see if any particular parameter had a significant relationship with the confidence levels. Notes were taken during each of the survey discussion periods in order to qualitatively analyze the viewpoints of the participants.

Survey Participant Demographics

At 15 participants each, the colleges of engineering and agriculture were best represented in this survey, with the college of science following close behind with 10 participants. Majors in social science, hospitality, education, and business were not well represented in this survey (fig. 2). Most participants seemed to have come from a middle class or above background, most designating that their parents owned homes and that they

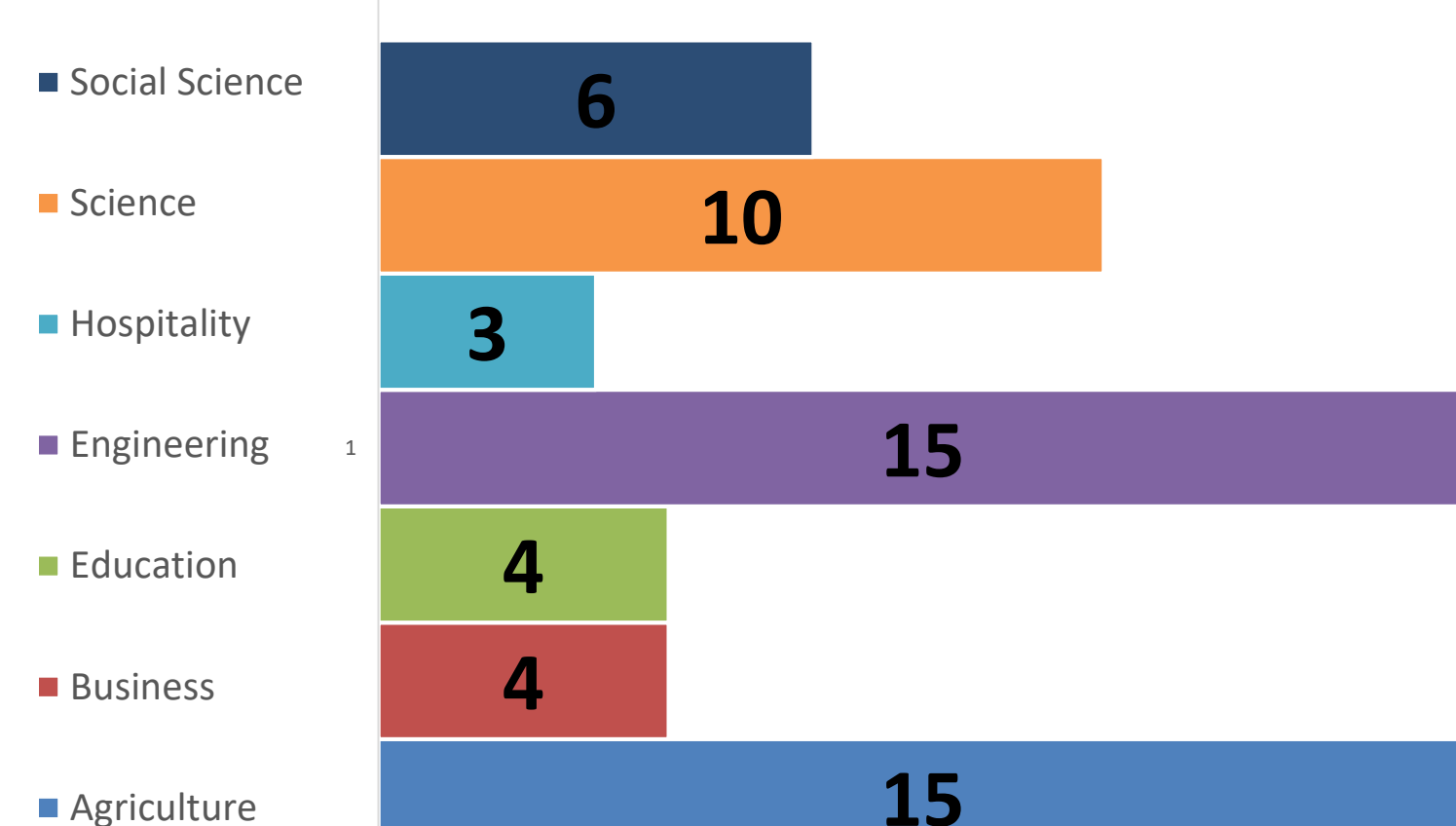


Figure 2. A chart depicting the number of participants from each college represented in the survey.

grew up in the suburbs. Participants were split right down the middle on the question of cultural identity. 27 participants said they had a strong cultural identity growing up, 27 said they didn't, and 3 participants opted not to answer the question. Of the 57 participants surveyed, 7 were members of the Kellogg Honors College. Although many participants belonged to clubs, not enough belonged to the same clubs to use club membership as a parameter for statistical testing. None of the participants were currently enrolled in any regenerative studies courses.

Abstract

Sustainability is an important concept that has lost much of its meaning due to over-use. This study surveyed 57 college students using a variation of the implicit association test to create a mental map of how they understood sustainability. Fifty slides were presented to participants – once at a fast pace, followed by a slower pass through with a brief group discussion. The changes in response between the two halves of the survey were counted as an "indecision variable" which was used to quantify the disparity between the subconscious and conscious view of sustainability, indicating the confidence levels of beliefs about sustainability. The group discussions were used to collect qualitative data on the participants' views of sustainability and their reasoning behind their responses. The results of this study found that there was a broad range of confidence levels among students. A single significant relationship was found between a participant parameter (time spent watching tv) and confidence levels. Combined quantitative and qualitative analysis indicated that many individuals do not have a definition for, or, have an overly simplistic understanding of sustainability. Further study is needed to determine the nature of the relationship between confidence level variations among television viewing habit levels.

Why Confidence?

What was the point of testing for confidence and piecing together perceptions held by participants, rather than just testing for knowledge? As mentioned in the introduction, sustainability is considered as jargon by many today. The term is used and misused quite often. There are many opinions of what makes something sustainable or unsustainable – these views often relating to a person's personal worldviews. Individuals have differing opinions and biases that they have developed based upon their own personal experiences. Rather than test for knowledge of potentially debatable information, I opted to remove the right and wrong aspect entirely. By testing for confidence levels instead of knowledge I placed all participants on a level playing field, no matter what their personal views may be. This allowed me to take a somewhat abstract look at what my participants consider to be sustainable, and just how confident they are in their beliefs.

Results

As a random result of not pre-screening participants, many of the parameter groups were uneven. Uneven distribution occurred among colleges represented (fig. 2), economic backgrounds represented (overwhelmingly middle class or above), and the numbers of individuals who indicated concern for sustainability (48 of the 57 participants were concerned). Indecision variables ranged widely. Only one parameter from the survey bore significant results. A single factor ANOVA was conducted to compare the effect of concern for sustainability on the indecision variable (fig. 3). There was no significant difference between the two groups. Another single factor ANOVA was conducted to compare the effect of time spent watching TV on the indecision variable (Fig. 4). There was a significant difference between the groups.

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
Yes	45	742	16.48889	45.84646465
No	9	150	16.66667	12.5

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.237037	1	0.237037	0.005821683	0.939473	4.026631
Within Groups	2117.244	52	40.71624			
Total	2117.481	53				

Figure 3. ANOVA table comparing the effect of concern for sustainability on the indecision variable. There was no significant difference between the two groups.

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
None	14	257	18.35714	24.09341
One	19	360	18.94737	43.7193
Two	15	230	15.33333	22.66667
Three	9	97	10.77778	29.19444

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	476.9845	3	158.9948	5.103858	0.003546	2.779114
Within Groups	1651.051	53	31.1519			
Total	2128.035	56				

Figure 4. ANOVA table comparing the effect of time spent watching tv on the indecision variable. There was a significant difference between the tested groups.

Discussion

It is important to note that I did not define the indecision variable as being positive or negative. Being too inflexible can be just as negative as changing the mind too much. Being too indecisive can imply either a lack of interest or a lack of thought. On the other hand, being too inflexible could be a sign of obstinance, possibly caused by personal bias. While it did become evident during group discussions that some individuals did have personal bias, it seemed that the majority of participants were genuinely trying to define sustainability for themselves as we discussed the survey. It was very evident from these discussions that many students do not have a definition for sustainability - very often it was viewed more as a feeling than as a tangible concept.

Although single factor ANOVA tests are considered robust, the unequal values tested and the non-biological nature of the indecision variable may have played a part in some of the results. However, it was interesting to see that there was a significant difference in the way individuals responded based on the different levels of tv viewership (Fig. 4). Although I cannot insinuate the nature of this relationship, it can be seen from the group averages that more time spent watching tv was associated with fewer changes in response.

The qualitative examination of the group discussions was very eye opening. The results of several slides stood out, especially during the open discussion portion of the survey. Slides 21 (fig. 5) and 22 (fig. 6) both portray children at play, but the mood in the photos are very different. Both passes on slide 21 had high yes answers (45 and 52 respectively), while the first pass on slide 22 had relatively high no answers (35 no's). During the group discussions, participants commented that they weren't paying attention to the children, but rather responded based on the background. This demonstrated the power of displaying the same concept with different lenses and perhaps presents some insight into the power of using "sustainability" in advertisements. A second set of slides demonstrated this further. Slide 42 was simply a picture of "cage free" eggs (fig. 7). On the first pass, it received mostly positive responses (fig. 9). However, slide 44 depicted actual cage free chickens (fig. 8), and received overwhelmingly negative responses (fig. 11). This discrepancy came up during the group discussion, and many participants changed their slide 44 answer on the second pass (fig. 10).



Figure 5. Slide 21 – children playing in a peaceful setting.



Figure 6. Slide 22 – children playing in a warzone.



Figure 7. Slide 42 – "cage free" eggs.

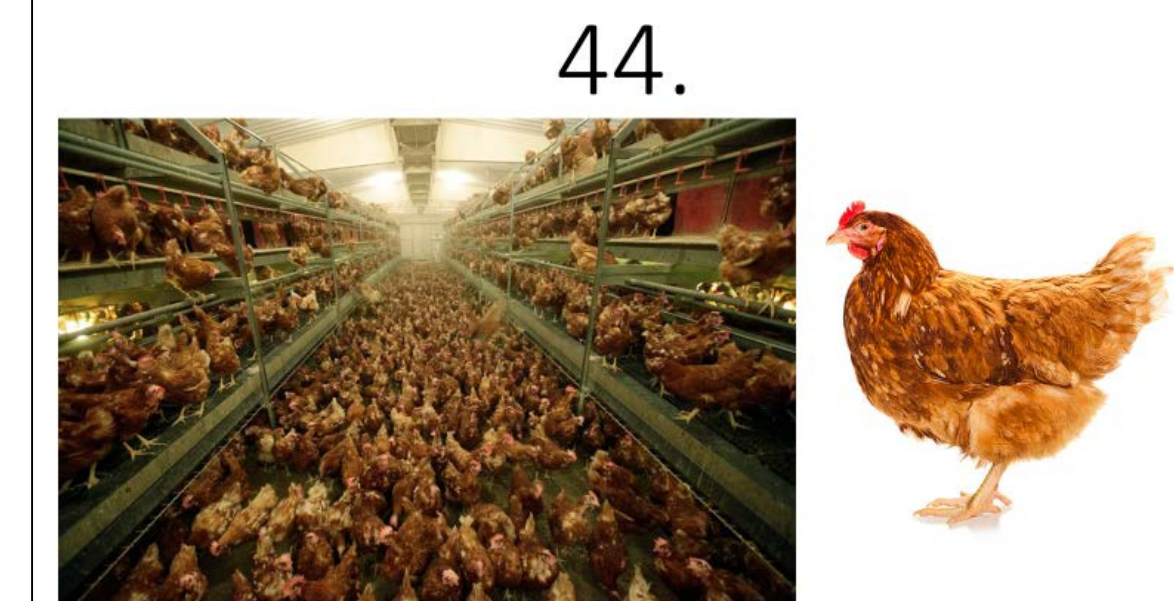


Figure 8. Slide 44 – cage free chickens.

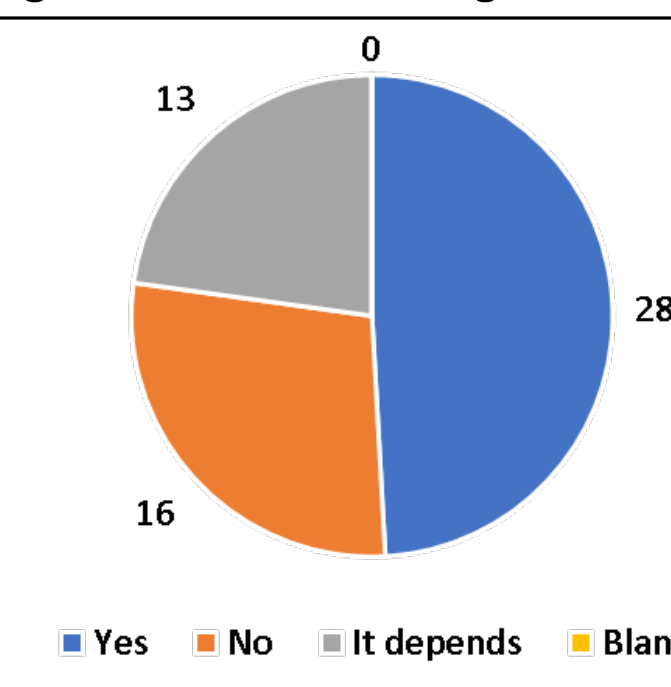


Figure 9. First pass results from slide 42.

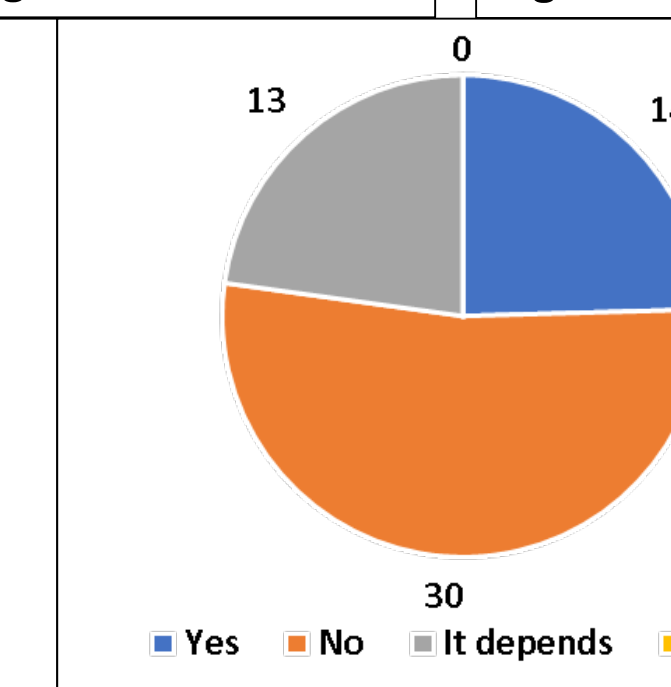


Figure 10. Second pass results from slide 42.

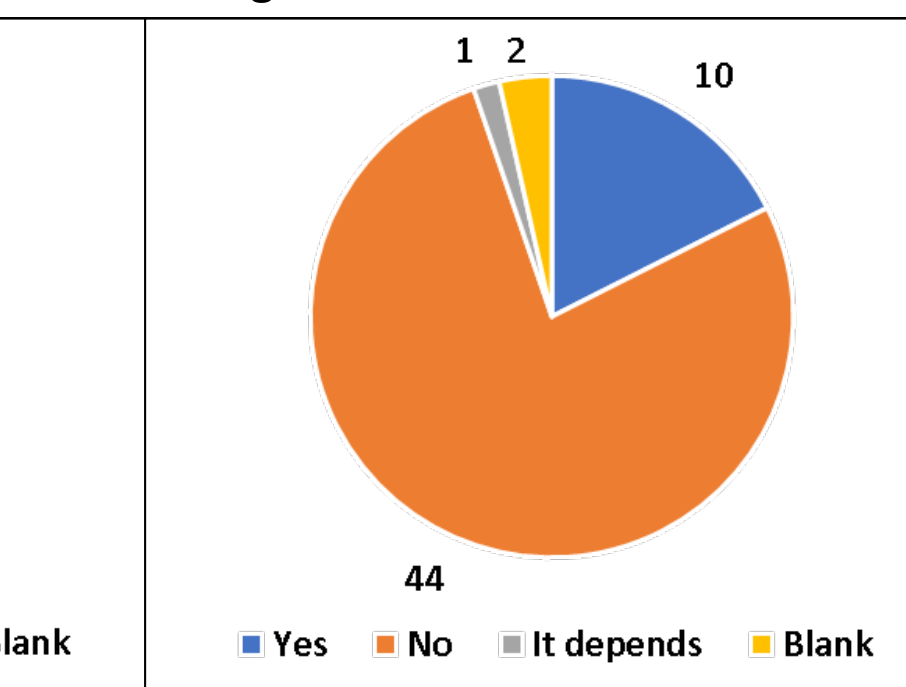


Figure 11. First pass results from slide 44.

Conclusions

Although no significance was found among the majority of tested survey parameters, I found it very interesting that there was a significant difference in the indecision variable among different levels of television viewership. Further study is needed to determine the nature of this relationship and the implications that it may have on how individuals perceive sustainability.

I believe that all people have an innate sense of what is sustainable. This can be seen clearly in the results of the first slide (fig. 1). When participants had a moment to think about it, 100% of all participants answered that yes, nature is sustainable. We human beings often like to ignore the fact that we are a product of nature. We do have an innate understanding of what is sustainable, but this innate understanding can be distorted and taken advantage of by commercial and other interests.

At times, participants argued that in order for something to be sustainable, it needed to be good for people, but not necessarily good for nature. They are under the influence that we are set apart from nature – that we don't need it to survive. But they couldn't be farther from the truth. Beyond all the obvious services given to us by nature – nutrient cycling, water purification and transportation, biological controls of all kinds, waste treatment, toxin and chemical breakdown, etc. – we need nature. We are part of nature. On a deep level, we require nature to continue being human. The farther we displace ourselves from the natural world, the greater the danger becomes of taking for granted that which sustains us. We won't destroy nature. We couldn't, even if we wanted to. But we can destroy ourselves.

If the results of this study are representative of the student body as a whole, it can be assumed that most college students are concerned about sustainability. However, this concern does not mean that they understand what it means to be sustainable – this study found that individuals have many perception of sustainability. No two surveys were completely alike. These differences can be seen as something negative – a lack of continuity in the way we teach individuals about sustainability. But it can also be seen as a positive point. There does not seem to be a strong community bias among students at Cal Poly Pomona. Perhaps this is a sign that we have enough viewpoints on campus that our students are able to think critically and come up with their own conclusions. Sustainability is not a one-size fits all topic. Every country, every community, and every person has to address it in the way that makes sense based on where they live and the standards they live by. In order to prepare our students' minds for the challenges of tomorrow, we must be sure that we allow free thought and idea sharing to continue unhindered.