

Abstract

Among environmental ethicists, there is disagreement about the best conceptual approach to encourage environmentalism and environmentally responsible behavior. Anthropocentrism and ecocentrism are two polarized but not necessarily dissonant perspectives in environmental ethics. I claim that while ecocentrism may encourage stronger environmentalist principles, in order to encourage environmentalist values to those who are not already so-inclined, a more anthropocentric approach is more effective.

Introduction

Motivations

As someone who has gone through many different phases as an “environmentalist”, I continue to reflect and reevaluate my beliefs and core values on the topic of environmental conservation and sustainability. This is the reason I set about carrying out this investigation in environmental philosophy. After four years at Olin, where I feel that I have undergone my own growth, as well as doubts and confusions, as an environmentalist, I feel that I can learn a lot from my peers and their own philosophical journeys as environmentalists, at whatever stages they may be.

I wanted to find out more about how students’ values as environmentalists map to the fundamental topics and perspectives in environmental philosophy. In addition, I set out to explore how these beliefs may or may not relate to other aspects of these students’ lives and identities. In particular, I was interested in understanding more about the differences between ecocentric versus anthropocentric schools of thought.

I carried out a survey asking students to indicate some of their priorities and beliefs as environmentalists. From this information, as well as the open responses provided by these students, I set out to get a better understanding of my peers’ perspectives, as well as to learn as much as I could for my own understanding of the subject.

Background

“Environmentalism” can mean a lot of things to a lot of different people. Not only do people care about variety of issues when it comes to the environment, but often they also care for different reasons.

In environmental philosophy, there are many conceptual approaches, but the most fundamental include ecocentrism, biocentrism, and anthropocentrism. In addition, I will briefly describe the roles of sentience and generalized altruism in regards to environmental philosophy.

Anthropocentric environmentalists favor human-based rationales for preserving the environment, and therefore place priority on environmental issues that affect the human race. This often includes not just the people of the present, but also future generations of human beings.

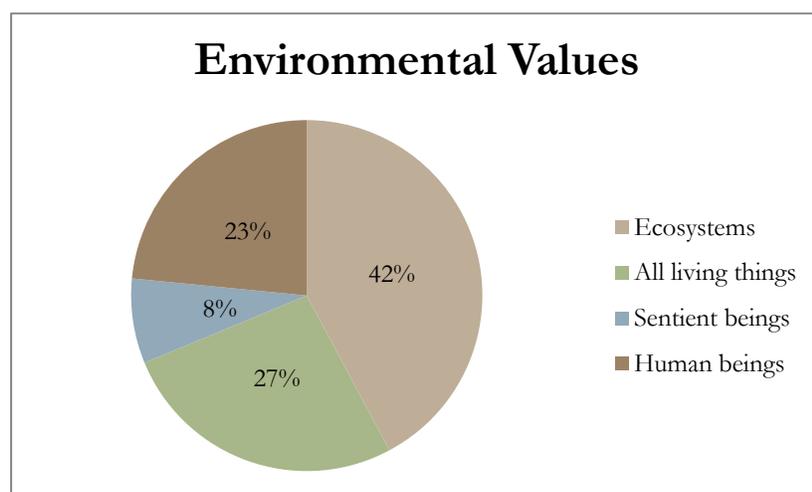
In contrast, the ecocentrism and biocentrism consider all natural life, and do not prioritize human beings in consideration of environmental issues. Biocentric philosophy is centered on the principle that human beings are one of many living species, and that we all have moral consideration, even if it is not equal. Ecocentrism, on the other hand, values entire ecosystems, including nonliving things. Ecocentrism emphasizes the importance of conserving the wellbeing of the entire ecosphere, and how many of its components, living or nonliving, are important in maintaining the health of the ecosystem.

Another concern, for some utilitarian environmental ethicists, is the maximization of pleasure and minimization of suffering. For these ethicists, their primary concern is the wellbeing of all sentient beings. And commonly another source of environmentally ethical values and behaviors is a more general altruism, which is does not explicitly relate to any core principles in environmental ethics.

Foundations of Environmental Ethics

One question posed to survey participants asked, *Fundamentally, my environmental values stem from a concern / sense of responsibility toward _____*. The participants were prompted to select one of four responses¹: **Ecosystems** (including non-living things), **All living things** (plants, animals, etc.), **Sentient beings** (capable of experiencing pleasure / pain), or **Human beings** (including future generations).

The chart below displays the responses to this prompt. The “ecosystems” option (theoretically) represents the ecocentric response to the given question. “Human beings” represents the anthropocentric response. “All living things” represents the biocentric perspective. Lastly, “sentient beings” represents a concern for the welfare of all beings which are able to experience pleasure and pain.



Sentience: An Appreciation of the Capacity to Feel

To favor sentience as the primary concern in regards to one’s environmental values is to prioritize the ability to experience life, and a sense of responsibility to maximize pleasure and minimize suffering to all those who are capable of experiencing these basic sensations. 5 out of 64 survey participants selected “sentient beings” as their primary concern / sense of responsibility, in regards to their fundamental environmental values.

In environmental ethics, sentience was a primary rationale for Peter Singer’s position on animal welfare. He argued that the basis of moral standing is sentience - the ability to experience suffering and enjoyment. Because of this capacity, Singer argued that animals have moral standing, and that we should treat them with the same amount of basic decency that we treat human beings (Singer, 2008). Many animal rights theorists describe anthropocentrism, favors human over animal rights as “speciesism”. This is the general idea that

¹ For this question, *All animals* was another possible response. However, because only one participant selected this response, and *Sentient beings* is mostly inclusive of this option, for the sake of analysis both responses are recorded under the *Sentient beings* response.

there are no significant traits which distinguish humans from other species, so the only basis that humans have to prioritize other humans is that they are part of the same species.

A response favoring “sentient beings” suggests a prioritization of those beings which can “experience” life, rather than a concern for all living things (plants, bacteria, etc.), represented by the *biocentric* perspective.

Biocentrism: Prioritizing All Living Things

The “all living things” response was second most popular, selected by 17 of 64 participants. This response represents a biocentric ethical perspective, which prioritizes all forms of life, rather than only humans or sentient beings. Paul Taylor, an important founder of biocentric philosophy, argues that all living things have *inherent value* and thus have moral consideration. He also asserts that all living things have equal moral consideration, though this is not the only school of thought in the biocentric approach to environmental ethics. Kenneth Goodpaster uses a *life principle* as the basis of his biocentric approach to environmental ethics. He emphasizes the value of life itself, but unlike Taylor he claims that not all living things share equal moral consideration.

Ecocentrism: Prioritizing Ecosystems

The most popular response to the prompt (27 out of the 64 responses) identified ecosystems as the foundation of survey takers’ environmental values. This would suggest (theoretically) that most survey takers favor the ecocentric perspective in environmental ethics. Generally, ecocentrism is a more holistic approach to environmental ethics. Although ecocentrism may seem to stray farthest from anthropocentric principles, these two perspectives in environmental ethics are not necessarily incongruous, as later discussed.

Aldo Leopold, the founder of the ecocentric ethic, describes his ideals in regards to environmental philosophy and ethical practices toward the environment as “the land ethic.” He describes,

The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land... In short, a land ethic changes the role of Homo sapiens from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such. (Light & Rolston, 2003)

It is unclear why this response was the most popular, but it is likely in part due to the fact that the survey was directed toward environmentalists, rather than the entire student body, at Olin.

Anthropocentrism: Prioritizing Human Beings

15 out of 64 survey takers selected “human beings” as their fundamental concern in regards to their environmental values. In reality, this only reflects a prioritization of human beings, and does not necessarily reflect all forms of anthropocentrism. . The most extreme anthropocentric approach to environmental ethics values nature and other living things solely for the benefit they provide for human beings. This is in contrast with many biocentric and ecocentric approaches which claim that ecosystems or other living beings are important for their own sake, rather than solely for their instrumental value for human beings. Other, less extreme interpretations of anthropocentrism claim human supremacy but not necessarily sole importance of the human species.

Ecocentric versus Anthropocentric Environmental Philosophies

Environmental Philosophies Described

In the open response portion of the survey, students were asked, *Why do you care about the environment / where do your environmental values stem from?* In retrospect, it would have been best to ask the two questions separately (*why do you care about the environment* and *where do your environmental values stem from*) because the first question generally elicits responses about the participants' environment philosophies, whereas the second is more relevant to how they came to adopt these beliefs. For example, a response discussing the enjoyment of the outdoors may reflect how the survey participant came to value the environment, but this may not reflect his or her values or beliefs as an environmentalist.

The table below demonstrates the frequency of certain responses to this prompt, relative to the survey participants' response to the question, *Fundamentally, my environmental values stem from a concern / sense of responsibility toward _____*, as either "ecosystems" and "human beings".

Open response subjects to the question: *Why do you care about the environment / where do your environmental values stem from?*

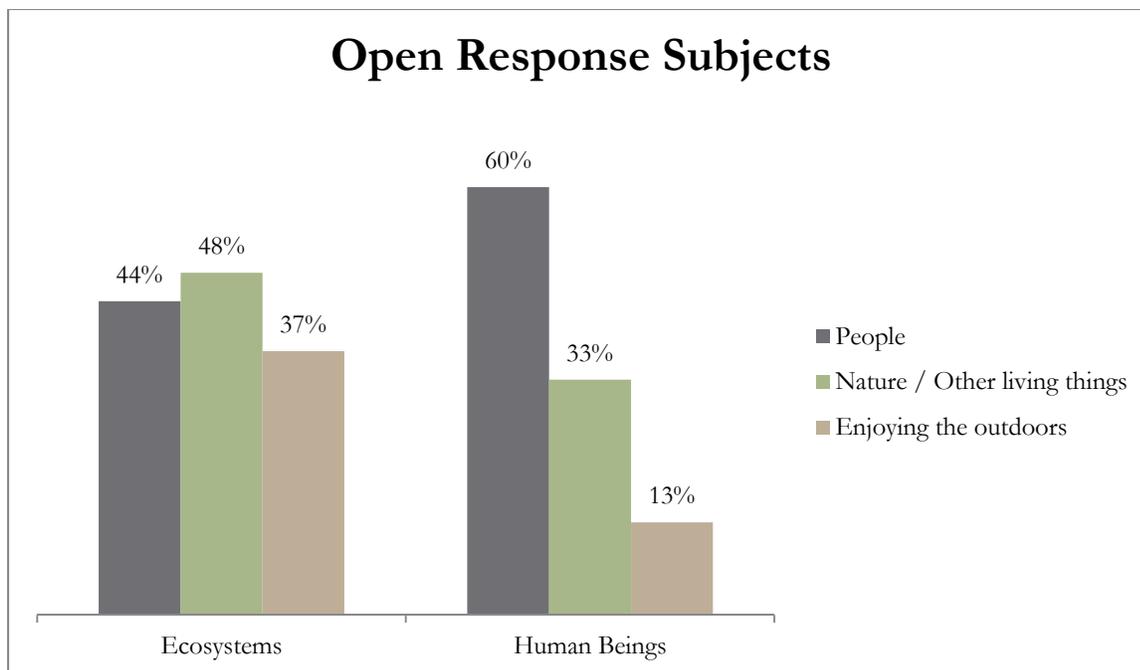
| | Ecosystems (27 responses) | People (15 responses) |
|---|------------------------------|--------------------------|
| Anthropocentric | | |
| Future generations | 19% | 27% |
| Preserving nature for future generations to enjoy | 7% | 13% |
| People / human health | 19% | 27% |
| Social justice | 0% | 13% |
| Resource conservation | 15% | 13% |
| Ecocentric / Biocentric | | |
| Respect for earth / nature | 27% | 27% |
| Beauty of nature | 11% | 13% |
| Other living things | 15% | 0% |
| Other | | |
| Spending time in nature / enjoying the outdoors | 33% | 7% |

From a qualitative perspective, generally survey participants discussed human concerns much more frequently than either biocentric or ecocentric values or priorities. There are also some subjects which could be interpreted as reflecting a number of these fundamental approaches to environmental ethics. For example, in discussing the beauty of nature, the participant may be alluding to the value it provides for human beings, or a more general appreciation for nature itself.

It is interesting to note that survey participants who responded that ecosystems were the primary concern as environmentalists often discussed enjoying nature (or "the outdoors"), whereas those who prioritized human beings generally did not. In theory, this response reflects a more anthropocentric valuation of the environment, given the instrumental value that is placed on nature. But, as discussed above, this response more closely correlates to how participants' developed their environmentalist values, rather than their core

values as environmentalists. It also generally reflects an appreciation of nature (even if it is for the sake of human appreciation) which is not necessarily a value shared by anthropocentrists, who in extreme cases would not value nature other than the instrumental value it plays to human beings.

This is one example of where ecocentric and anthropocentric values collide. As this data supports, often the instrumental value of nature leads to a more holistic appreciation of the natural world. Below is a graph of the broader set of subjects discussed by survey participants, according to their environmental priority (as either ecosystems or human beings).



From this summary of the open response subjects discussed by survey participants, it is clear that regardless of environmental priority, human related rationales for protecting the planet still apply. As Andrew Light, who proposes a *pragmatic approach* to environmental ethics explains, “Every non-anthropocentrist who has taken seriously the question of conflicts of value in a non-anthropocentric approach acknowledges that in many cases human interests will still trump nonhuman interests where these interests directly come into conflict.” (Light, Contemporary Environmental Ethics From Metaethics to Public Philosophy, 2002)

In contrast to Light’s claims, Dr. Helen Kopnina, author of *Evaluating education for sustainable development (ESD): using Ecocentric and Anthropocentric Attitudes toward the Sustainable Development (EAATSD) scale* and researcher of environmental education at The Hague University of Applied Science (HHS) has a very different take on the value of anthropocentric versus ecocentric reasoning in promoting environmentally responsible sentiment and behavior.

Evaluating education for sustainable development (ESD): using Ecocentric and Anthropocentric Attitudes toward the Sustainable Development (EAATSD) scale

As Dietz, Fitzgerald, and Shwom discuss in their article entitled *Environmental Values*, it is often difficult to distinguish between anthropocentric versus ecocentric values, especially through survey analysis (Dietz, Fitzgerald, & Shwom, 2005). According to Kopnina, the Environment scale (EAATE) is the one of, if not the only survey which attempts to address the issue, by creating prompts specifically designed to accurately

identify participants' responses as correlating with either ecocentric or anthropocentric values (Kopnina, 2013). Nonetheless, the survey is by no means perfect. In Kopnina's study, twenty eight students from the International Business Management Studies department at HHS were selected to participate in the EEATE survey, as well as to participate in a follow-up interview survey in order to assess the effectiveness of the EEATE at prompting distinctively anthropocentric or ecocentric responses.²

Participants were asked to indicate the extent to which they agreed or disagreed to statements which were intended to reflect either ecocentric, anthropocentric, or environmentally apathetic³ values, using a scale from "strongly agree", "agree", "neither agree nor disagree", "disagree", or "strongly disagree". After completing the survey, students were asked to identify which of the statements correlated to each of the three environmental mentalities. However, upon completing these interviews, researchers found that many of the questions did not necessarily correlate to uniquely ecocentric or anthropocentric values, but often could be interpreted in either regard.

After this study, Kopnina created a revised version of the EEATE, renamed the Ecocentric and Anthropocentric Attitudes toward Sustainable Development scale (EEATSD). For this survey, many of the questions which were not uniquely ecocentric or anthropocentric were omitted, and new questions were added. Similarly to the conclusions drawn from the Olin survey, interviews of the HHS participants revealed that statements related to the appreciation of nature do not reflect distinctively ecocentric or anthropocentric attitudes.

After a second round of surveys (using the EEATSD) and interviews (with twenty of the twenty eight original survey takers), participants acknowledged that the survey was generally clearer, and that the questions more distinctively reflected either ecocentric or anthropocentric attitudes. However, as evidence of the generalized altruistic attitude described by Dietz et al., survey takers reiterated that it was not always possible for them to consider an issue exclusively in regards to either anthropocentric or ecocentric values.

Conclusions from the EEATSD Study

In her article, Kopnina draws many conclusions from the results of the EEATSD investigation. These are discussed below.

According to Kopnina, anthropocentrism "not only entails human moral superiority vis-a`-vis other species, but also ethical consideration is exclusively confined to human beings. The values associated with nature are instrumental, and non-human beings have no intrinsic value outside their use to humans" (Kopnina, 2013). However, the statement that human beings demonstrate "moral superiority" over other species is not a very meaningful claim. As Mary Anne Warren points out in *A Critique of Regan's Animal Rights Theory*, other living things do not have the capacity to behave as moral actors. In society, human beings live by a set of moral codes, as established by the society. Because non-human beings do not have the capacity to understand and therefore adhere to this moral contract, they do not qualify as moral actors (by the standards of human beings). So to assert that anthropocentric thought assumes human moral superiority does not assert any particularly meaningful argument. This is also only one (extreme) form of anthropocentric thought. Not all anthropocentric philosophy entails that other living beings have only instrumental value.

² Questions from the EEATE and EEATSD scales are included in the appendix.

³ Apathetic statements reflect a disregard for the environment, or particular environmental issue.

Kopnina also claims that “anthropocentrism embedded in sustainable development (SD) discourse implies that humans are largely in control of the surrounding world and that problems arising from modern living can be taken care of through technological development” (Kopnina, 2013). However, this was not consistent with the survey results of Olin environmentalists. When asked to evaluate the statement, “Human ingenuity will ensure that we do NOT make the earth unlivable” 27% of anthropocentrists strongly disagreed, while only 10% of the remaining survey participants responded that they strongly disagreed.

Kopnina also stated that “people with ecocentric orientation are much more likely to actually act upon their values, attitudes and beliefs in order to protect the environment than those with anthropocentric orientations” (Kopnina, 2013). Again, this conclusion was not reflective of the responses by Olin environmentalists. In surveying participants about their environmental behaviors (for example, how often they recycled, engaged in environmental activism, etc.) anthropocentric participants were just as engaged in environmentally responsible behavior as compared with the other Olin environmentalists.

It is worth noting that since the Olin survey was addressed specifically to environmentally-oriented students, the results are not necessarily directly comparable to the findings of the HHS study. However, I believe that results from the Olin survey are still relevant to the primary conclusion which Kopnina draws, related to the efficacy of anthropocentric versus ecocentric philosophy in promoting environmentalist values.

Final Conclusions

Finally, Kopnina concludes that an ecocentric rather than anthropocentric approach is more effective at encouraging environmentally favorable behaviors and attitudes. On this topic, I am much more inclined to adopt Light’s pragmatic approach, rather than Kopnina’s argument for ecocentric arguments to guide education for sustainable development (the platform for debate in Kopnina’s article). As previously discussed, Light does not promote ecocentric dialogue in addressing the general public (as opposed to environmentalists or environmental ethicists). In Light’s *Taking Environmental Ethics Public*, he argues,

“...to continue to ignore human motivations for the act of valuing nature causes many in the field to overlook the fact that most people find it very difficult to extend moral consideration to plants and animals on the grounds that these entities possess some form of intrinsic, inherent, or otherwise conceived nonanthropocentric value... Claims about the value of nature as such do not appear to resonate with the ordinary moral intuitions of most people who, after all, spend most of their lives thinking of values, moral obligations, and rights in exclusively human terms” (Light, *Taking Environmental Ethics Public*, 2011).

I strongly agree with Light on this subject. Anthropological reasoning is clearly the most intuitive approach to environmental philosophy. Even for the emphatic ecocentrist, it will always be more instinctual to see the world in the eyes of a human being; those are the only set of eyes that we have. We will never truly understand the perspective of another living thing; it is just not possible.

This is not to say that I disagree with ecocentric philosophy. In fact, I consider myself to be an ecocentrist at heart, but an environmental pragmatist in practice. As previously stated, I do not believe that ecocentric and anthropocentric principles have to come in conflict. As author John Stanley Rowe describes in his article *Ecocentrism and Traditional Ecological Knowledge*, “ecocentrism is not an anti-human argument nor a put-down of those seeking social justice. It does not deny that myriad important homocentric problems exist. But it stands aside from these smaller, short-term issues in order to consider Ecological Reality” (Rowe J. S., 2012).

Ecocentrism embraces the complexity of the planet and its ecosystems, and recognizes its transcendence. Although humans have begun to gain an understanding, and even have the power to manipulate genetic material, we are not the founders of these building blocks of life. We can never truly replicate what billions of years of evolution have developed, which we must fight to preserve.

But we cannot expect for all of earth's people to engage in this level of reverence and devotion to the protection of the planet. Many people struggle for survival for themselves and for their families on a daily basis. And even those who have the means to engage in more global issues may choose not to, or may not see eye to eye with the environmentalist cause. It is important to engage with people in terms that they understand and support. And it is important that all issues, human and non-human are addressed.

This is why I personally support an anthropocentric platform on which to engage with the general population. The ecocentric movement will continue to survive, and even thrive in the community of environmentalists and environmental ethics. But I do not believe it is the most effective approach to encouraging environmentally responsible behavior.

Appendix

Appendix I: Methods

Demographic Characteristics of Participants

| Student | Class | Major | Gender | State of Education | Age |
|----------------|--------------|----------------------|---------------|---------------------------|------------|
| 1 | 2013 | ECE | Male | Virginia | 22 |
| 2 | 2015 | ME | Male | California | 21 |
| 3 | 2016 | Robotics | Female | Massachusetts | 20 |
| 4 | 2015 | E:C | Male | California | 20 |
| 5 | 2015 | Design | Female | Connecticut | 20 |
| 6 | 2014 | Robotics | Female | California | 21 |
| 7 | 2016 | E:C | Male | Pennsylvania | 19 |
| 8 | 2014 | Materials Science | Male | Massachusetts | 21 |
| 9 | 2017 | Undecided | Female | California | 18 |
| 10 | 2014 | Design | Female | California | 21 |
| 11 | 2014 | N/A | Female | Florida | 21 |
| 12 | 2015 | ME | Male | North Carolina | 20 |
| 13 | 2017 | ECE | Female | Texas | 18 |
| 14 | 2015 | ME | Female | California | 20 |
| 15 | 2013 | ME | Female | Virginia | 22 |
| 16 | 2015 | E:C | Female | Colorado | 20 |
| 17 | 2017 | Undecided | Male | West Virginia | 18 |
| 18 | 2016 | Undecided | Female | (Outside of U.S.) | 20 |
| 19 | 2015 | E:C | Male | California | 21 |
| 20 | 2015 | E:C | Male | Connecticut | 20 |
| 21 | 2014 | Robotics | Male | Ohio | 21 |
| 22 | 2017 | Materials Science | Female | Massachusetts | 18 |
| 23 | 2015 | ME | Female | Rhode Island | 19 |
| 24 | 2013 | ECE | Female | California | 22 |
| 25 | 2014 | ECE | Female | Minnesota | 21 |
| 26 | 2017 | Robotics | Female | Oregon | 18 |
| 27 | 2014 | Materials Science | Female | Texas | 21 |
| 28 | 2014 | Sustainable Design | Female | New York | 21 |
| 29 | 2014 | ME | Female | Massachusetts | 21 |
| 30 | 2016 | ME | Female | Colorado | 19 |
| 31 | 2014 | ECE | Male | New Jersey | 21 |
| 32 | 2017 | Bio-Engineering | Female | New York | 18 |
| 33 | 2014 | Materials Science | Female | Florida | 20 |
| 34 | 2016 | ECE | Female | Pennsylvania | 19 |
| 35 | 2016 | ME | Female | Virginia | 19 |
| 36 | 2015 | E:C | Female | North Carolina | 20 |
| 37 | 2014 | Strategic Management | Male | New Jersey | 21 |
| 38 | 2014 | ME | Female | Idaho | 22 |
| 39 | 2016 | Energy Systems | Female | California | 19 |
| 40 | 2016 | N/A | Female | New Jersey | 19 |
| 41 | 2017 | ECE | Male | New York | 18 |
| 42 | 2015 | ECE | Female | Florida | 20 |
| 43 | 2013 | Materials Science | Female | New York | 22 |
| 44 | 2017 | ME | Female | Hawaii | 18 |

| | | | | | |
|----|------|--------------------|--------|-------------------|----|
| 45 | 2016 | ECE | Male | California | 19 |
| 46 | 2015 | Economics | Female | Ohio | 20 |
| 47 | 2014 | ME | Female | Texas | 21 |
| 48 | 2016 | ME | Male | California | 19 |
| 49 | 2013 | ECE | Male | Arizona | 22 |
| 50 | 2016 | ECE | Female | Massachusetts | 19 |
| 51 | 2015 | ECE | Male | Virginia | 21 |
| 52 | 2013 | Robotics | Female | California | 21 |
| 53 | 2014 | ME | Male | California | 22 |
| 54 | 2016 | Undecided | Male | Massachusetts | 19 |
| 55 | 2014 | Sustainable Design | Female | Texas | 21 |
| 56 | 2015 | Bio-Engineering | Female | Texas | 20 |
| 57 | 2017 | Undecided | Male | (Outside of U.S.) | 17 |
| 58 | 2016 | ME | Female | Delaware | 20 |
| 59 | 2017 | ME | Female | California | 18 |
| 60 | 2013 | Sustainable Design | Female | California | 23 |
| 61 | 2014 | Systems | Male | (Outside of U.S.) | 21 |
| 62 | 2014 | Design | Female | California | 22 |
| 63 | 2013 | ME | Male | Pennsylvania | 23 |
| 64 | 2014 | Design | Female | (Outside of U.S.) | 23 |

Appendix II: Results

Environmentalist Identities

| <i>Which of the following best describes your identity in relation to the environment?</i> | Responses |
|---|------------------|
| Environmental Activist: <i>Conservation is a huge priority to me, and a big part of my life and identity, and I speak openly to others about my values and beliefs as an environmentalist.</i> | 4 |
| Environmental Advocate: <i>Conservation is a priority for me, and I regularly shape my decisions/actions around my value for the environment.</i> | 12 |
| Environmental Proponent: <i>Conservation is important to me, and I try to make environmentally conscious decisions on a daily basis.</i> | 20 |
| Environmentally Concerned: <i>I value environmental conservation, and I try to be environmentally conscious when it's convenient.</i> | 19 |
| Environmentally Aware: <i>I value environmental conservation, but it is not a priority for me.</i> | 9 |

Environmental Values

| <i>Fundamentally, my environmental values stem from a concern / sense of responsibility toward...</i> | Responses |
|--|------------------|
| Ecosystems (including non-living things) | 27 |
| All living things (plants, animals, etc.) | 17 |
| Sentient beings* (capable of experiencing pleasure / pain) | 5 |
| Human beings (including future generations) | 15 |

*For this question, the choice for "all animals" was included in the "sentient beings" responses, for the sake of analysis. "Sentient beings" is mostly inclusive of this response, and only one participant selected this response.

Environmental Influences

| How much do each of the following topics contribute toward your commitment to environmentalism? | Supreme Importance | Very Important | Somewhat Important | Not at all Important |
|--|---------------------------|-----------------------|---------------------------|-----------------------------|
| <i>The survival of humankind</i> | 18 | 21 | 10 | 2 |
| <i>My health</i> | 7 | 22 | 13 | 0 |
| <i>Earth itself</i> | 15 | 16 | 5 | 0 |
| <i>All sentient beings</i> | 9 | 17 | 4 | 1 |
| <i>Stewardship for the lord's creation</i> | 3 | 5 | 6 | 39 |
| <i>My future children</i> | 13 | 16 | 9 | 7 |
| <i>The beauty/complexity of the earth, and it's systems</i> | 21 | 19 | 3 | 0 |
| <i>All forms of life</i> | 19 | 19 | 7 | 1 |
| <i>My community</i> | 5 | 23 | 8 | 3 |
| <i>The beauty of the world</i> | 19 | 19 | 3 | 1 |
| <i>Future generations</i> | 19 | 16 | 3 | 1 |
| <i>Others' health</i> | 12 | 19 | 3 | 2 |
| <i>My future</i> | 7 | 18 | 9 | 2 |

Environmental Priorities

| How important to you are the following environmental issues? | Supreme Importance | Very Important | Somewhat Important | Not at all Important |
|---|---------------------------|-----------------------|---------------------------|-----------------------------|
| Global Warming / Climate Change | 14 | 18 | 5 | 1 |
| Species Extinction | 16 | 14 | 7 | 0 |
| Energy Conservation | 16 | 21 | 5 | 0 |
| Ecosystem / Habitat Conservation | 17 | 20 | 2 | 0 |
| Air Quality | 14 | 13 | 6 | 0 |
| Sustainable Food Production | 18 | 13 | 9 | 0 |
| Land Degradation/Soil Conservation | 14 | 13 | 12 | 0 |
| Urban Issues | 8 | 15 | 13 | 0 |
| Overpopulation | 13 | 15 | 8 | 4 |
| Resource Conservation | 18 | 15 | 6 | 0 |

Environmental Conceptions

| For each of the following statements about the relationship between humans and the environment, please indicate the extent to which you agree or disagree, using the scale | Strongly Agree | Agree | Neither Agree Nor Disagree | Disagree | Strongly Disagree |
|---|-----------------------|--------------|-----------------------------------|-----------------|--------------------------|
| <i>We are approaching the limit of the number of people the earth can support</i> | 16 | 25 | 13 | 9 | 1 |
| <i>Humans have the right to modify the natural environment to suit their needs</i> | 4 | 20 | 25 | 14 | 1 |
| <i>When humans interfere with nature it often produces disastrous</i> | 6 | 26 | 24 | 8 | 0 |

| <i>consequences</i> | | | | | |
|---|----|----|----|----|----|
| <i>Human ingenuity will ensure that we do NOT make the earth unlivable</i> | 4 | 11 | 23 | 17 | 9 |
| <i>Humans are severely abusing the environment</i> | 26 | 31 | 4 | 3 | 0 |
| <i>The earth has plenty of natural resources if we just learn how to develop them</i> | 11 | 20 | 18 | 13 | 2 |
| <i>Plants and animals have as much right as humans to exist</i> | 24 | 27 | 10 | 2 | 1 |
| <i>The balance of nature is strong enough to cope with the impacts of modern industrial nations</i> | 0 | 3 | 6 | 38 | 17 |
| <i>Despite our special abilities humans are still subject to the laws of nature</i> | 31 | 29 | 3 | 1 | 0 |
| <i>The so-called "ecological crisis" facing humankind has been greatly exaggerated</i> | 1 | 5 | 13 | 26 | 19 |
| <i>The earth is like a spaceship with very limited room and resources</i> | 7 | 30 | 17 | 8 | 2 |
| <i>Humans were meant to rule over the rest of nature</i> | 3 | 5 | 7 | 22 | 27 |
| <i>The balance of nature is very delicate and easily upset</i> | 6 | 25 | 20 | 11 | 2 |
| <i>Humans will eventually learn enough about how nature works to be able to control it</i> | 2 | 10 | 15 | 26 | 10 |
| <i>If things continue on their present course, we will soon experience a major ecological catastrophe</i> | 19 | 30 | 10 | 5 | 0 |

Appendix III - The EEATE & EEATSD Scales

EEATE

By design, questions 1, 2, 5, 7, 12, 16, 21, 26, 28, 30, 32, and 33 are supposed to reflect ecocentric attitudes, and questions 4, 8, 11, 13, 14, 22, 23, 24, 27, 28, and 31 correlate to anthropocentric values.

1. One of the worst things about overpopulation is that many natural areas are getting destroyed for development.
2. I can enjoy spending time in natural settings just for the sake of being out in nature.
3. Environmental threats such as deforestation and ozone depletion have been exaggerated.
4. The worst thing about the loss of the rain forest is that it will restrict the development of new medicines.
5. Sometimes it makes me sad to see forests cleared for agriculture.
6. It seems to me that most conservationists are pessimistic and somewhat paranoid.
7. I prefer wildlife reserves to zoos.
8. The best thing about camping is that it is a cheap vacation.
9. I do not think the problem of depletion of natural resources is as bad as many people make it out to be.
10. I find it hard to get too concerned about environmental issues.
11. It bothers me that humans are running out of their supply of oil.
12. I need time in nature to be happy.
13. Science and technology will eventually solve our problems with pollution, overpopulation, and diminishing resources.

14. The thing that concerns me most about deforestation is that there will not be enough lumber for future generations.
15. I do not feel that humans are dependent on nature to survive.
16. Sometimes when I am unhappy I find comfort in nature.
17. Most environmental problems will solve themselves given enough time.
18. I don't care about environmental problems.
19. One of the most important reasons to keep lakes and rivers clean is so that people have a place to enjoy water sports.
20. I'm opposed to programs to preserve wilderness, reduce pollution and conserve resources.
21. It makes me sad to see natural environments destroyed.
22. The most important reason for conservation is human survival.
23. One of the best things about recycling is that it saves money.
24. Nature is important because of what it can contribute to the pleasure and welfare of humans.
25. Too much emphasis has been placed on conservation.
26. Nature is valuable for its own sake.
27. We need to preserve resources to maintain a high quality of life.
28. Being out in nature is a great stress reducer for me.
29. One of the most important reasons to conserve is to ensure a continued high standard of living.
30. One of the most important reasons to conserve is to preserve wild areas.
31. Continued land development is a good idea as long as a high quality of life can be preserved.
32. Sometimes animals seem almost human to me.
33. Humans are as much a part of the ecosystem as other animals.

Kopnina's new scale (the EEATSD), based on feedback from survey participants, did not include questions 2, 12, 16, and 28, which related to the appreciation of nature. Because this can be interpreted as ecocentric or anthropocentric (the appreciation of nature itself, or the benefit towards humans in enjoying the outdoors), it does not provide a distinction between anthropocentric and ecocentric attitudes. Questions 7, 8, 16, 17, 32, and 33 were also omitted in the EEATSD because survey participants felt that they did not reflect either anthropocentric or ecocentric values. And questions 20 and 27 were also excluded due to feedback that these questions were unclear.

EEATSD

The EEATSD scale consists of 22 items. Items 1, 4, 9, 17, 19, 21 and 22 belong to the ecocentric subscale.

1. One of the worst things about overpopulation is that many natural areas are getting destroyed for development
2. Environmental threats such as deforestation and ozone depletion have been exaggerated
3. The worst thing about the loss of the rain forest is that it will restrict the development of new medicines and that there not be enough lumber for future generations
4. It makes me sad to see forests cleared for agriculture
5. It seems to me that most conservationists are pessimistic and somewhat paranoid
6. I do not think the problem of depletion of natural resources is as bad as many people make it out to be
7. I find it hard to get too concerned about environmental issues
8. Humans are justified drilling for oil as it satisfies economic needs, even though it might be bad for the environment
9. The thing that concerns me most about deforestation is that many species may be endangered by it
10. I don't care about environmental problems
11. The most important reason to keep lakes and rivers clean is so that people have drinking water
12. It makes me sad to see natural environments destroyed
13. The most important reason for conservation is human survival
14. Best thing about recycling is that it saves money
15. Nature is important because of what it can contribute to the pleasure and welfare of humans

16. Too much emphasis has been placed on conservation
17. Nature is valuable for its own sake, independent of human interests
18. Nature conservation is important to ensure a continued high standard of living
19. Nature conservation is important to preserve wild areas for plants and animals
20. Continued land development is a good idea as long as a high quality of life can be preserved
21. Animal testing should be prohibited even if this will slow the development of new medicines for humans
22. Animal rights are as important as women rights, minority rights, gay rights and other equality issues

Works Cited

- Dietz, T., Fitzgerald, A., & Shwom, R. (2005). Environmental Values. *Annual Review of Environment & Resources*, 335-372.
- Kopnina, H. (2013). *Evaluating education for sustainable development (ESD): using Ecocentric and Anthropocentric Attitudes toward the Sustainable Development (EAATSD) scale*. Dordrecht: Springer Science + Business Media.
- Light, A. (2002). Contemporary Environmental Ethics From Metaethics to Public Philosophy. In A. Light, *Metaphilosophy* (pp. 426–449). New York: Blackwell Publishers Limited.
- Light, A. (2011). Taking Environmental Ethics Public. In D. Schmidtz, & E. Willot, *Environmental Ethics: What Really Matters? What Really Works?* (pp. 556-566). New York: Oxford University Press.
- Light, A., & Rolston, H. I. (2003). *Environmental Ethics: An Anthology*. Malden, Massachusetts: Wiley-Blackwell.
- Rowe, J. S. (2012, December 1). *Ecocentrism and Traditional Ecological Knowledge*. Retrieved November 12, 2013, from Ecospheric Ethics: http://www.ecospherics.net/pages/Ro993tek_1.html
- Rowe, S. (1994). Ecocentrism: The Chord that Harmonizes Humans and Earth. *The Trumpeter*, 106-107.
- Singer, P. (2008). A Utilitarian Defense for Animal Liberation. *Environmental Ethics: Readings in Theory and Application*, 68-81.