2007

Environmental education : the ethic of caring for nature and social altruism

Monica Nañez
San Jose State University

Follow this and additional works at: https://scholarworks.sjsu.edu/etd_theses

Recommended Citation

Nañez, Monica, "Environmental education : the ethic of caring for nature and social altruism" (2007).
Master's Theses. 3388.
DOI: <https://doi.org/10.31979/etd.m8g9-43qe>
https://scholarworks.sjsu.edu/etd_theses/3388

This Thesis is brought to you for free and open access by the Master's Theses and Graduate Research at SJSU ScholarWorks. It has been accepted for inclusion in Master's Theses by an authorized administrator of SJSU ScholarWorks. For more information, please contact scholarworks@sjsu.edu.

**ENVIRONMENTAL EDUCATION:
THE ETHIC OF CARING FOR NATURE AND SOCIAL ALTRUISM**

A Thesis

Presented to

The Department of Environmental Studies

San José State University

In Partial Fulfillment

of the Requirements for the Degree of

Masters of Science

by

Monica Nañez

May 2007

UMI Number: 1445251

INFORMATION TO USERS

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

UMI[®]

UMI Microform 1445251

Copyright 2007 by ProQuest Information and Learning Company.

All rights reserved. This microform edition is protected against unauthorized copying under Title 17, United States Code.

ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

© 2007

Monica Nañez

ALL RIGHTS RESERVED

APPROVED FOR THE DEPARTMENT OF ENVIRONMENTAL STUDIES

Dr. Lynne Trulio (Thesis Chair), Professor of Environmental Studies

Dr. Marcos Pizarro, Mexican American Studies Department Chair

Dr. Arlene Asuncion, Associate Professor of Psychology

APPROVED FOR THE UNIVERSITY

ABSTRACT

ENVIRONMENTAL EDUCATION:

THE ETHIC OF CARING FOR NATURE AND SOCIAL ALTRUISM

By Monica Nañez

Ideally, increased knowledge of the natural environment inspires a sense of connectedness to and caring for nature—including people. However, learning about the natural environment involves learning about the human-made environmental crisis, potentially leading to adverse feeling towards people.

This research examines the relationship between environmental concern and social altruism among Santa Clara County high school students. Fifty Environmental Science students and 42 Non-Environmental Science students responded to an environmental concern and social values questionnaire, and 42 of these students were interviewed. The students' reported levels of environmental concern and social altruism, based on their questionnaire and interview responses, were analyzed. The Environmental Science students expressed significantly higher levels of environmental concern. There was no significant difference between Environmental Science and Non-Environmental Science students in regards to social altruism. Among all students there was a highly significant correlation between social altruism and environmental concern.

Dedication and Acknowledgements

Dedication: This thesis is dedicated to my family.

Acknowledgments: I am deeply grateful to my committee members, Dr. Lynne Trulio, Dr. Marcos Pizarro, and Dr. Arlene Asuncion, and to all of my friends, classmates, and professors who inspired me along the way. Thank You.

I would also like to thank the College of Social Sciences for granting me the College of Social Sciences Foundation research grant, which helped to fund this research.

Table of Contents

List of Tables	vii
List of Figures	ix
Introduction.....	1
Literature Review.....	7
Objectives	23
Methods	24
Results	35
Discussion.....	106
Conclusions and Recommendations.....	120
References.....	123
APPENDIX A: Agreement to Participate	128
APPENDIX B: Agreement to Participate.....	130
APPENDIX C: Spring 2005 Student Survey.....	133
APPENDIX D: Schwartz Value Survey.....	134
APPENDIX E: Environmental Concern Questionnaire.....	137
APPENDIX F: Interview Questions	140

List of Tables

<i>Table 1.</i> Cross-tabulation of class type and environmental concern scores.	47
<i>Table 2.</i> Chi-square results for the cross-tabulation of class type and environmental concern scores.	48
<i>Table 3.</i> Cross-tabulation of high school and environmental concern scores.	49
<i>Table 4.</i> Chi-square results for the cross-tabulation of high school and environmental concern scores.	50
<i>Table 5.</i> Cross-tabulation of class type and environmental concern scores at each high school.	51
<i>Table 6.</i> Chi-square results for the cross-tabulation of class type and environmental concern scores at each high school.	52
<i>Table 7.</i> Environmental Science students' reasons for taking the class.	53
<i>Table 8.</i> Cross-tabulation of class type and ethnicity.	60
<i>Table 9.</i> Chi-square results for the cross-tabulation of class type and ethnicity.	61
<i>Table 10.</i> Cross-tabulation of ethnicity and environmental concern scores.	62
<i>Table 11.</i> Chi-square results for the cross-tabulation of ethnicity and environmental concern scores.	63
<i>Table 12.</i> Cross-tabulation class type and social altruism scores.	70
<i>Table 13.</i> Chi-square results for the cross-tabulation of class type and social altruism scores.	71
<i>Table 14.</i> Cross-tabulation of environmental concern scores and motivational value type.	75

<i>Table 15.</i> Chi-square results for the cross-tabulation of environmental concern scores and motivational value type.	76
<i>Table 16.</i> Cross-tabulation of environmental concern scores and social altruism scores.	77
<i>Table 17.</i> Chi-square results for the cross-tabulation of environmental concern scores and social altruism scores.	78
<i>Table 18.</i> Interview results: environmental concern and social altruism relationships. ...	80

List of Figures

<i>Figure 1. Students' responses to the statement, I am part of nature.....</i>	38
<i>Figure 2. Students' responses to the statement, I care about nature.....</i>	39
<i>Figure 3. Students' responses to the statement, Humans are abusing the natural environment.....</i>	40
<i>Figure 4. Students' responses to the statement, Humans have the responsibility to change aspects of our lifestyle that cause damage to the natural environment, even if it means giving up certain luxuries.</i>	41
<i>Figure 5. Students' responses to the statement, I consider myself an environmentalist.</i>	42
<i>Figure 6. Students' responses to the statement, Humans should protect the natural environment even if it is costly.</i>	43
<i>Figure 7. Students' responses to the statement, In the future I plan to help protect the natural environment.....</i>	44
<i>Figure 8. Percentage of Environmental Science and Non-Environmental Science students in each environmental concern category.</i>	46
<i>Figure 9. Students' responses to the statement, most people care about nature.....</i>	67
<i>Figure 10. Students' responses to survey statement number 25, I care about people.....</i>	68
<i>Figure 11. Percentage of Environmental Science and Non-Environmental Science students in each social altruism category.....</i>	69
<i>Figure 12. Students' responses to the statement, Caring for nature is related to caring for people.</i>	72

Introduction

The environmental crisis threatens the quality of life on earth. The extent to which this crisis will impact the health of the planet largely depends on the ability of the human population to define and address the crisis of social conditions and of social thought that have led us into the current environmental predicament. We have various significant obstacles to overcome. Among the most pressing environmental issues are, overpopulation, global climate change, species loss, air and water pollution, and world hunger.

Even as technological and agricultural advances are made, an estimated 842 million people do not have enough to eat (Food and Agricultural Organization of the United Nations [FAO], 2004). An estimated 1/3 of children in developing nations fall far enough under the normal height range for their age to indicate chronic malnourishment (FAO, 2004). And each year more than 5 million children die of causes related to malnutrition, making undernourishment the number one risk to global health (FAO, 2004).

According to the Population Reference Bureau (2004) the current world population is approximately 6,396,000,000. All world regions will continue to grow with the exception of Europe; 90% of the increase in world population is expected to occur in the poorest countries in Africa and Asia (Population Reference Bureau, 2004). The world population is expected to increase to 7,934,000,000 by 2025 and to 9,276,000,000 by 2050 (Population Reference Bureau, 2004). The percent increase in population from 2004 to 2050 is estimated to be 45%. The United States population, at about 293,600,000

people, is the third most populous nation on earth, and is projected to grow to almost 420 million by 2050 (Population Reference Bureau, 2004). This is a 43% increase in the U.S. population between 2004 and 2050.

Although growth rates in developing countries generally outpace growth rates of developed countries, it is important to consider that the wealthiest 20% of the world's population account for 86% of private consumption (Population Reference Bureau, 2004). The poorest 20% of the world's population account for less than 2% of private consumption (Population Reference Bureau, 2004).

As world population and affluence increase, so will the demand for natural resources and environmental problems. For example, the Intergovernmental Panel on Climate Change (IPCC) has stated that the human use of natural resources, primarily combustion of fossil fuels and changes in land cover, have significantly increased greenhouse gases in the Earth's atmosphere (IPCC, 2001). An increased human population will inevitably lead to increased production of greenhouse gasses and further alter land cover. Although the extent to which greenhouse gasses from human activity will impact global climate and global ecosystems cannot be specifically predicted, the IPCC (2001) projects that warming will be greater than any known of in the last 10,000 years; according to the IPCC (2001) human activities have caused most of the warming observed over the past fifty years. Human health, agriculture, water resources, forests, and wildlife have each been identified to be vulnerable to projected climate change (IPCC, 2001). Melting of the polar ice-caps, rising sea-levels, and overall warmer climates are believed to pose a serious threat to the health of the planet (IPCC, 2001).

Our environmental predicament indicates a worldview that lacks consideration for the health of the planet. Nature writers, indigenous communities, and environmentalists have all acknowledged our disregard for the natural world as a problem, not only impacting the physical environment, but also impacting the human as a person.

John Muir, for example, whose life was centered on his love of nature and the freedom he found in the wilderness wrote, “where the sunshine sleeps on alpine gardens and the young rivers flow rejoicing from the glacial caves...perfect quietude is there, and freedom from every curable care” (Muir, 1988, p.23). In numerous other passages Muir describes a sense of serenity, resulting from his experiences in nature (Muir, 1988).

Similarly, Tatanga Mani, a Stoney Indian, wrote of his feelings towards nature: “hills are always more beautiful than stone buildings, you know. Living in a city is an artificial existence... When people live far from scenes of the Great Spirit’s making, it’s easy for them to forget his laws” (n.d., p.23).

More recently Deep Ecology and ecopsychology philosophies have emerged. Deep Ecology is described as a movement that seeks to preserve diversity of all life, including human cultural diversity (Naess, 1988). The importance of a human connection to and appreciation of the natural environment is central to Deep Ecology. Ecopsychology is similar to Deep Ecology and often practitioners overlap in philosophical ideas. However, ecopsychology is specifically focused on the psychological aspects of the human relationship to nature. Ecopsychologists believe that the human psyche is linked to the natural world; therefore, the well being of the human psychologically is dependent on both the human relationship with the natural world and

the well being of the natural world (Ferrel, 1999; Gomes, 1998; Gray, 1995). According to the ecopsychologist, Mary Gomes, (1998), “the qualities of our culture that are most damaging to the Earth are also those that are most destructive to the human soul” (p. 7).

The relationship between the ethic of caring for nature and caring for humans is an important one to assess. Ideally, caring for nature would inspire goodness in humans and caring for nature would include caring for humans. However, given the state of the environment and the understanding that the human species is responsible for so much environmental destruction, it is possible that developing a strong ethic of caring for nature may produce anger and resentment towards people, rather than a sense of peace and serenity.

Furthermore, historically, environmentalists have not been free of racist and elitist ideologies. Often American environmentalism has actually been seen as a luxury of wealthy white men concerned with very limited issues (Bullard, 1994; Gottlieb, 1993). Until recently the environmental movement did not include environmental justice issues, which are often the primary environmental concerns of the poor and people of color (Bullard, Johnson, & Wright, 1997).

Still, the ethic of caring for nature is more often associated with positive humanistic values. An ethic of caring for nature should help society deal with the environmental crisis we have created. Learning about the relationship between caring for nature and caring for humans may help us to face the environmental predicament in the most constructive way for all of nature including humans.

One way to promote caring for nature is to incorporate environmental education into the educational system. Environmental education is designed to help people better understand environmental problems, understand the human link to those problems, and develop a caring attitude towards the natural environment. Environmental education should help students build an understanding of the environmental crisis and motivate them to care for the earth. But, how learning to care for the natural world is related to students' valuation of humans is uncertain.

Various theorists and some researchers have explored the influence of personal values on environmental concern (Schultz and Zelezny, 1999; Stern, Dietz, Kalof, and Guagnano, 1995; Clump, 2002). However, research that investigates the relationship between environmental ethics on personal values is more limited. This thesis investigated the relationship between caring for nature and caring for people among high school youth in a classroom setting, assessing whether a strong ethic of caring for nature is inclusive of caring for humans.

This research focuses on high school students in Santa Clara County, California. Very little qualitative research addresses the thesis questions proposed here and none of the previous research has been inclusive of the target population, an ethnically diverse group of high school students in Northern California. Specifically this work compares the ethic of caring for nature among high school students in Environmental Science classes to students in Non-Environmental Science classes, and also investigates social altruism among these two groups of high school students. Finally, this research

investigates the relationship between the ethic of caring for nature and social altruism among all of the high school students.

Literature Review

Status of Environmental Education

National studies have found that 95% of Americans believe environmental education should be a part of standard education (Gambro & Switzky, 1996; The National Environmental Education and Training Foundation [NEETF], 2001). However, environmental education is not generally a standard or consistent part of education, and consequently, the majority of Americans possess low levels of environmental knowledge (Coyle, 2005; NEETF, 2001; Gambro & Switzky, 1996; Zimmermann, 1996). About 80% of Americans possess incorrect or outdated information about environmental issues (Coyle, 2005). Based on a nationwide survey, only one-third of American adults can pass a basic environmental knowledge quiz (Coyle, 2005).

According to May (2000), most states do not include environmental education in their curriculum. In California, there are mandates written into the education code that require environmental education to be included within the curriculum. However, the mandates are very general. Bill Andrews (personal communication, March 5, 2004), the only employee for the entire state of California Office of Environmental Education, stated that the implementation of environmental education in California classrooms is largely absent. Research that can help to determine the state of environmental education in California is cost-prohibitive, according to Andrews (personal communication, March 5, 2004).

Although research indicates comprehensive environmental education is lacking in the U.S., a national study comparing the status of environmental education between 1995

and 1998 showed that important components of environmental education, such as a state curriculum guideline, a state environmental education office, an environmental education trust fund, a state environmental education master plan etc., had increased within states throughout the nation (Ruskey, Wilke, & Beasley, 2001). When the study was published many states were in the process of developing the components that the study had identified and, given this, Ruskey et al. (2001) believe that environmental education is gaining ground in the educational infrastructure. Although this study is clearly limited in that it compares components and not actual implementation or success of environmental education, it provides an optimistic outlook for the future of environmental education.

Environmental Education and Environmental Attitudes

There have been various studies that indicate environmental education programs can contribute to positive environmental attitudes (Coyle, 2005; Volk & Cheak, 2003; Vaske & Korbrin, 2001; Culen & Volk, 2000; Pooley & O'Conner, 2000; Shean & Shei, 1995; Zimmermann, 1996). In addition, most studies indicate that the best way to promote positive environmental behavior (action as opposed to just attitudes) is to instill both appreciation for the natural environment and knowledge of environmental issues (Pooley & O'Conner, 2000; Shean & Shei, 1995; Zimmermann, 1996).

Shean and Shei (1995) stated, in regards to their research on environmental attitudes among college students, that “a sense of appreciation for and pleasure in nature and the connectedness of all life forms are most likely to be effective in increasing environmental concern and action” (p. 563). Their research measured environmental concern, knowledge, and behavior, and they found that the combination of knowledge

and affect correlated with positive environmental behavior. Knowledge, independently, was not a significant indicator of environmental behavior (Shean & Shei, 1995).

Vaske & Korbrin (2001) conducted a study to address the relationship between place attachment and environmentally responsible behavior. They surveyed 182 students between the ages of 14 and 17 that were involved in natural resource work programs. Survey questions were used to determine the teenagers' relationship to their local environment and their respective environmental behaviors. The findings showed that the teenagers were much more likely to practice environmentally responsible behavior when they had developed a connection to the natural local environment (Vaske & Korbrin, 2001). A pre-test was not administered and so the ability to claim that the program had influence on the students' development of concern for the natural environment is limited. However, the research findings do suggest that the experience of visiting the area led to emotional attachment.

In another study, Culen and Volk (2000) assessed the environmental behaviors of 15 seventh and eighth grade classes, of which about half participated in environmental education and half did not. The researchers administered pre- and post-tests measuring environmental behavior and knowledge, and they found that the students who were exposed to environmental education had a positive increase in environmental behavior and knowledge (Culen & Volk, 2000). Similarly, Volk & Cheak (2003) compared groups of 5th and 6th grade students who experienced an environmental education program with a group of the same grade students (at the same school) who did not.

Again, the findings showed a positive correlation between environmentally-favorable behavior and environmental education (Volk & Cheak, 2003).

Zelenzny (1999) conducted a meta-analysis of 18 studies on the effectiveness of environmental education programs. In all of the studies in which environmental education took place within the classroom there was a positive increase in environmental attitudes. However, among the studies in nontraditional settings, outside the classroom, only 44% found improved environmental behavior. The environmental education programs in nontraditional settings were typically short-term, indicating that it may be less likely for short-term programs to effectively promote positive environmental attitudes (Zelenzny, 1999).

A study by Eagles and DeMare (1999) differs from most research in that they found an environmental education program to have little or no impact on students' attitudes. They found that a week-long residential camp program aimed at increasing students concern for the natural environment did not have significant impact on the students' attitudes. However, their data did show a correlation between positive environmental attitudes and behavior. The researchers speculated that one-week was not enough time to significantly change the average students' attitudes towards the natural environment.

Human Values

The theory of basic human values as described and researched by Schwartz (1992; 1994) is based on the premise that people fall into 1 of 10 motivational value types: power, achievement, hedonism, stimulation, self-direction, universalism, benevolence,

tradition, conformity, and security. These ten motivational types have been found to exist in cultures throughout the world (Schwartz, 1992; Schwartz, 1994; Schwartz, S.H., Boehnke, K., 2004; & Schultz and Zelezny, 1999). Definitions of these motivational value types and the values associated with each motivational type are as follows (Schwartz, 1994):

power: Social status and prestige, control or dominance over people and resources (values: social power, wealth, authority, preserving my public image, and social recognition).

achievement: Personal success through demonstrating competence according to social standards (values: ambitious, influential, capable, successful, intelligent, and self-respect).

hedonism: Pleasure and sensuous gratification for oneself (values: pleasure and enjoying life).

stimulation: Excitement, novelty, and challenge in life (values: an exciting life, a varied life, and daring).

self-direction: Independent thought and action-choosing, creating, and exploring (values: freedom, creativity, independent, choosing own goals, curious, self-respect).

universalism: Understanding, appreciation, tolerance and protection for the welfare of all people and for nature (values: equality, unity with nature, wisdom, a world of beauty, social justice, broad-minded, protecting the environment, and a world of peace).

benevolence: Preservation and enhancement of the welfare of people with whom one is in frequent personal contact (values: helpful, responsible, forgiving, honest, loyal, mature love, and true friendship).

tradition: Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provide the self (values: respect for tradition, devout, accepting my portion in life, humble, and moderate).

conformity: Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms (values: obedient, self-discipline, politeness, and honoring of parents and elders).

security: Safety, harmony and stability of society, of relationships, and of self (values: national security, reciprocation of favors, family security, sense of belonging, social order, healthy, and clean).

The Schwartz Value Survey (SVS) is the instrument used to determine a person's motivational value type, based on each person's valuation of the set of values associated with each motivational value type. The SVS has been tested in more than 60 countries, and strong evidence supporting the validity of the SVS has been collected (Schwartz, 1992; Schwartz, 1994; Schwartz, S.H., & Boehnke, K., 2004).

“The theory adopts a definition of values as desirable, transsituational goals, varying in importance, that serve as guiding principles in people's lives” (Schwartz, et al., 2001, p. 521). All of the values have the potential of conflicting or harmonizing with any of the other values (Schwartz, 2001). The values that people have are the criteria

they use to determine their own personal actions and to evaluate people and events (Schwartz 1992). Different people attribute different priority to each value, forming different motivational value types (Schwartz 2001).

Universalism and the values associated with it are of central importance to this research. Universalism emphasizes understanding, appreciating, and protecting the welfare of all people and nature (Houston & Ryckman, 2003; Schwartz, 1992; Schwartz, 1994). Social justice, peace, and equality are values that are central to universalism (Houston & Ryckman, 2003). Also, the literature suggested that universalism includes two separate subtypes, social concern and concern for nature (Schwartz 1992; Schwartz, 1994).

People can and do place high value on values associated with different motivational value types. Therefore, it is possible to value universalistic values, although perhaps not as highly as individualistic values (achievement, hedonism, power, stimulation, and self direction) (Houston and Rych, 2003). However, research suggests that the motivational goals of some values (power and universalism) are inherently opposed, while the goals of other motivational value types (power and achievement) harmonize (Houston & Ryckman, 2003).

Values and Environmentalism

Research over the past 30 years has shown that environmental concern can be increased through environmental education (Schultz & Zelezny, 1999). Within the past decade research exploring the value basis of environmental concern has emerged (Schultz & Zelezny, 1999). Various studies addressing the relationship between personal values

and environmental concern have found a strong correlation between a socially altruistic value orientation (referred to in the literature as self-transcendence or universalism) and environmental concern.

Stern, et al. (1995) were among the first to conduct a study addressing the influence of values on the formation of environmental attitudes. The researchers theorized that values are strong predictors for the development of environmental attitudes. Their study included 199 adults from Fairfax County, Virginia, who were selected through random digit dialing and were interviewed over the phone. A questionnaire was used to determine personal values and environmental attitudes. The survey included a series of questions measuring beliefs about consequences of environmental issues for the self, for others, and for nonhuman life, as well as Likert-type statements measuring behavioral intent and a modified version of the Schwartz Value Survey (SVS).

Stern et al. (1995) found that the value orientation, self-transcendence (self-transcendence includes the motivational value types, universalism and benevolence) was strongly associated with environmental concern, while the value orientation, self-enhancement (self-enhancement includes motivational value types, power and achievement) showed the contrary. Other value types showed no direct correlations with environmental concern (Stern et al. 1995).

Similar to the Stern et al. (1995) study, two separate studies by Schultz and Zelezny (1998; 1999) considered the correlation between values and environmentalism. The first study included survey data gathered from five countries, including the United

States, Mexico, Peru, Nicaragua, and Spain (Schultz & Zelezny, 1998). A total of 958 individuals participated, including only college students living in metropolitan areas (Schultz & Zelezny, 1998). Pro-environmental behavior, awareness of environmental problems, personal responsibility, environmental attitudes, and demographics were measured using a four-page questionnaire. A combination of established measurements were used, such as the New Environmental Paradigm scale (NEP) and the SVS. Their results showed self-transcendence was significantly related to pro-environmental behavior in all countries, except Peru (Schultz & Zelezny, 1998). Among those belonging to the self-transcendence type, individual reporting of caring for the natural environment was the strongest predictor of pro-environmental behavior. A negative relationship between, self-enhancement and pro-environmental behavior was also established (Schultz & Zelezny, 1998).

The second study conducted by Schultz and Zelezny (1999) also sought to gain an understanding of the relationship between values and environmental attitudes. The sample focused heavily on Latin America, including 13 Latin American countries and the United States. A total of 2160 individuals participated in the study; all participants were college students. Based on their previous study and related research, Schultz and Zelezny (1999) hypothesized that “self-transcendent values would be positively related to ecocentrism, and negatively related to anthropocentrism across countries” (p. 2570). As in the first study, the results showed a strong positive correlation between the motivational type self-transcendence (especially the value type universalism) and

environmentalism, and a negative correlation between the motivational type, power and environmentalism (Schultz & Zelezny, 1999).

Clump (2002) also sought to address the relationship between environmental attitudes and social values. Using the ECOSCALE, which measures environmental responsibility, knowledge and opinions of environmental issues, willingness to act environmentally responsible, and self-reported behaviors, as well as the SVS to gather data. Three hundred nineteen male and female psychology students from a mid-western university were recruited for the study. Individuals with high scores on the ECOSCALE scored significantly higher on SVS self-direction, universalism, and benevolence value types, and they scored significantly lower on the power value type. Clump (2002) concluded that the data indicate that environmentally responsible citizens tend to see themselves as individuals who desire to protect the natural environment as well as the welfare for humans.

Shean and Shei (1995) surveyed college students involved in environmental organizations to gain an understanding of the relationship between environmental attitudes and value orientations. This research is distinct from the others in that respondents in environmental organizations were chosen and therefore likely to have positive environmental attitudes. Also, these researchers did not use the SVS to measure values; rather they use the Allport-Lindzey Study of Values and the Life Values Inventory. The students 'ecological attitudes' were measured using the Revised Scale for the Measurement of Ecological Attitudes and Knowledge (MEAK-R). The researchers found that "the environmentally active students placed significantly more importance on

the values of responsibility and concern for the welfare of others, and they de-emphasize the importance of personal affluence and political accomplishments” (Shean & Shei, 1995, p. 564).

Environmentalism, Social Values, and Social Attitudes

Research on values and environmentalism primarily focuses on values as a predictor of environmentalism, and most of the research does not indicate whether or not appreciation of nature can influence positive social values. Still, 85% of American adults believe that environmental education can increase thoughtfulness, consideration, and respect for both people and places (Coyle, 2005). Also, many theorists and philosophers, such as John Muir, Chief Luther Standing Bear, Albert Schweitzer, and others, have claimed that a connection to the natural world is essential to the emotional well-being of humans.

Although limited, some research exists that addresses the potential of caring for nature to change not only environmental attitudes, but also social values and attitudes. One study involves high school ‘at-risk’ youth. The focus of this study by Berlin (2003) goes beyond positive environmental attitudes and emphasizes the personal impact of nature on the students. Berlin (2003) describes a group of troubled inner-city youth enrolled in a school that incorporates environmental education in their curriculum. As the students learned about ecology and experienced nature through camping, fieldtrips, and other outdoor projects, their appreciation of the natural environment increased, their interest in school increased, and their behavioral problems decreased. One of the students stated, “ I believe—no, I’ve seen—that students are at their best when they’re

out in nature” (Berlin, 2003). The students developed a greater understanding of social and environmental problems, and also of ways that they could address those problems (Berlin, 2003). Towards the end of the school year, the students had more positive attitudes and most of the seniors were college bound. This article is a narrative more than a traditional research study, but the stories of the students are significant and a focal aspect of this study.

A recent study by the American Institute for Research (2005) on the effects of environmental education, specifically outdoor education, also addresses the influence of outdoor education on personal and social skills, in addition to improved environmental attitudes. The study included 255 participants, most of whom were Latino children from low-income households and considered ‘at-risk’ youth. Between 32% and 66% of the students were English language learners. The results showed that the students participating in a one-week outdoor camp gained skills in cooperation and conflict resolution. Based on the teachers’ perspectives, the students that attended the outdoor camps gained self-esteem, conflict resolution skills, learning motivation, and improved classroom behavior.

The implications of this study are important and promising. The experience of an outdoor camp had a significant influence on the students. It is difficult to specify what exactly made this impact, but the experience of sharing living space and chores, meeting peers from different communities and cultures, working with peers to solve problems, and having personal responsibility—all in a camp setting is a very unique experience

(American Institute for Research [AIR], 2005). Working and living closely with nature and people was central to the experience.

Deep ecology and ecopsychology.

Kowalewski (2002) describes his attempts to help his students build an appreciation for nature. He teaches Deep Ecology with the intention of helping his students establish a connection with nature. Through exercises in natural environments, his students developed an awareness of their connection to nature. The intent of developing the connection with nature was to promote the idea that nature has a worth in itself. He describes his students' experiences in a positive light and even claims that some of the students had metaphysical experiences. The study does not provide information about the students' attitudes towards each other.

“When people consciously understand that they are part of and intricately connected to the natural world, they will be able to expand their boundaries of empathy to include all of creation,” according to Feral (1999 p. 4). Feral believes that societal ills, such as violence, poverty, and toxic environments, are a heavy burden on people, especially children. The knowledge of environmental degradation adds a burden to life that can create a sense of despair, which can lead to depression and decreased self-esteem. As a part of her research, Feral implemented a program that consisted of 6 sessions designed to lead participants to the understanding that all life is interconnected, through observation and participation with nature. The intent was to reduce the negative impact of daily life and increase a sense of control, thus increasing emotional well-being. Based on pre and post-tests, the students that participated in the sessions showed

improved self-esteem, happiness, and emotional development. There are very significant limitations in this study; Feral's sample was considerably small, only including ten students. It was not clear whether all ten students participated in the sessions or if half of them were a part of the control group. Furthermore, the age of the students is not clear, only a brief statement of the target population states that it is 4th through 8th graders.

Another ecopsychologist, Greenway (1995), has been incorporating what he now refers to as ecopsychology in his wilderness classes through wilderness excursions since the 1970s. A central purpose of the trips was to develop an egalitarian relationship with the natural world in which the participants become immersed within the natural environment. Throughout the years he has collected about 700 questionnaires and 700 interviews from class participants (Greenway, 1995). Ninety percent of the respondents reported "an increased sense of aliveness, well-being, and energy" (Greenway, 1995, p.128). Among the three most important aspects of the trips cited by most people include alone time, greeting the sun, and community (Greenway, 1995). Eighty percent of those surveyed claimed to have returned with a very positive attitude, but 53% of those respondents felt that their positive feelings had turned into depression within two to three days (Greenway, 1995). Greenway's research is interesting; but the findings are limited to those students who chose to go on the excursions and who choose to complete the questionnaires. How most individuals would respond to the wilderness excursion cannot be generalized from his data collection.

The Human Connection to Nature

The concept that humans are connected to nature at a very profound level is a significant characteristic of various indigenous cultures. Bedagi of the Wabanakis Nation writes, “the earth is our mother. She nourishes us; that which we put into the ground she returns to us, and healing plants she gives us likewise” (Bendagi, n.d., p. 22). The perception of the Earth as a mother, which is common among Native American cultures, is associated with a distinct sense of appreciation and caring. This caring for the Earth in theory translates to caring for all life on Earth, including animals, plants, and people.

Chief Luther Standing Bear wrote (n.d., p. 45):

We did not think of the great open plains, the beautiful rolling hills, and winding streams with tangled growth, as ‘wild.’ Only to the white man was nature a ‘wilderness’ and only to him was the land ‘infested’ with wild animals and ‘savage’ people. To us it was tame. Earth was bountiful and we were surrounded with the blessings of the Great Mystery. Not until the hairy man from the east came and with brutal frenzy heaped injustices upon us and the families we loved was it wild for us.

Standing Bear’s statements suggest that his people appreciated nature and that their existence with nature allowed for a just and a good life. He expressed that their relationship to the natural world provided a blessed existence for his people.

Non-Indian, Environmental thinkers such as Henry David Thoreau, John Muir, and Albert Schweitzer have also written of the great value in caring for nature. Contrary to Standing Bear’s notion of nature as ‘tame,’ Thoreau wrote of nature as ‘wild’. However, he shared with Standing Bear the deep appreciation of the natural world. Thoreau wrote, “in wildness is the preservation of the World” (In Palmer (Ed.), 2001, p. 106). Similarly, John Muir, among the most prominent and admired American

conservationists, wrote about the spiritual completion that nature provides for humans (Palmer, 2001). The work of Albert Schweitzer (1923), specifically his theory of Reverence for Life explicitly denotes, not only the importance, but also the necessity of the human acknowledgement that all life is sacred. Schweitzer (1923) stated that only when we develop a “reverence for life can we establish a spiritual and humane relationship between both people and all living creatures within our reach” (pg. 95).

Certainly, if explored with greater detail, differences among the mentioned individuals and their philosophies would be evident. The intent is neither to accept nor reject a specific one. The attempt is to identify a common belief that links appreciation for nature to the human state of being. All of the mentioned individuals have in common a deep respect and appreciation for nature. They each acknowledge a positive influence that nature has on humans. The research objectives for this study stemmed from these philosophies. Whether or not these beliefs are manifested in Environmental Science students will be assessed, by quantitatively and qualitatively exploring the relationship between caring for nature and social values.

Objectives

Principles that hold the ethic of caring for nature in high value are common among Native Americans and among many environmentalists; many of their ideologies express the idea that an appreciation of nature is related not only to the well being of the natural environment, but also to the well being of the human personal and social condition (Berlin, 2003; McLuhan, 1972; Palmer, 2001; Kowalewski, 2002). Research that investigates this connection is limited.

The principal goal of this research is to explore the relationship between environmental concern and social altruism in a group of high school students. With this goal guiding the research, the following objectives are addressed:

Objective 1: Is there a significant difference between Environmental Science students' and Non-Environmental Science students' levels of environmental concern?

Objective 2: Is there a significant difference between Environmental Science students' and Non-Environmental Science students' levels of social altruism?

Objective 3: Is there a relationship between environmental concern and social altruism?

Methods

Definitions

For the purposes of this study, *nature* will include the Earth and all physical and biological aspects that make up the Earth, excluding human made goods. Therefore, nature includes water, animals, soil, air, but does not include computers, houses, books, or clothes (although all of these products originate from things in nature).

Caring for nature requires acknowledging and appreciating the value of nature; the value in nature is both tangible and intangible. Caring for nature involves believing that nature has intrinsic value and that nature has value to humans because human survival depends on the natural world. Caring for nature requires believing that destroying or harming nature needlessly, should be avoided. ‘Environmental concern’ is used in this research to refer to each individual’s level of caring for nature.

Social altruism means placing high value on all human life and having unselfish desire for the well being of all humans. A socially altruistic individual identifies strongly with principles such as social justice, equality, peace, and cooperation.

Study Site

Three high schools in Santa Clara County were chosen for this study based on several criteria. The first was that the high school offered Environmental Science. Most schools in Santa Clara County do not offer Environmental Science. The second criterion was that the school was ethnically diverse.

Santa Clara County, overall, has an ethnically diverse population. According to the California Department of Education (2004), the Santa Clara County school

enrollment for 2004 was as follows: 0.6% Native American, 0.7% Pacific Islander, 3.4% African American, 5.0% Filipino, 24.0% Asian, 28.7% white, 35.3% Latino, and 2.2% others.

I collected data from 3 high schools in Santa Clara County, not identified by name to ensure confidentiality for the teachers and students involved in the study. High School A's population for the 2004/2005 school year included: 0.2% Native American, 0.4% Pacific Islander, 1.5% Filipino, 1.9% African American, 3.2% Asian, 31.3% white, 59.8% Latino, and 1.7% of the students had no response or had multiple responses (California Department of Education, 2004). High School B's population for the 2004/2005 school year had an ethnic mix that included: 1.0% Pacific Islander, 2.6% Filipino, 2.5% African American, 3.2% Native American, 11.3% Asian, 27.7% Latino, and 51.6% white (California Department of Education, 2004). High School C's population for the 2004/2005 school year had an ethnic mix that included: 0.1% Native American, 1.2% Pacific Islander, 2.0% African American, 2.2% white, 7.3% Filipino, 30.3% Asian, and 56.9% Latino (California Department of Education, 2004).

A total of 6 classes participated, one Environmental Science class and one other science class (Non-Environmental Science) from each high school. One teacher from each school taught both the Environmental Science class and the Non-Environmental Science class. This was important in order to identify if a specific teacher had a particular influence on his or her students, regardless of the type of class. Thus, differences between Environmental Science and Non-Environmental Science students' attitudes are not attributable to the teacher. Having one set of classes from 3 different

schools allowed for a comparison between schools, which served to account for the influence of a particular school.

Study Design and Data Collection

This study consisted of 92 quantitative surveys and 42 open-ended interviews. Because the study involves the use of human subjects, research methods approval by the San Jose State University Institutional Review Board (IRB) was obtained. Every student signed a consent form, and those under the age of eighteen years also obtained parental consent to participate in the study (see Appendix A & B).

The survey was closed ended and semi-quantitative, and required 15 minutes to complete. The purpose of the survey was to quantitatively measure each student's level of affection for the natural environment and their level of social altruism. The survey was based on other questionnaires developed to measure social and personal values or environmental attitudes (Dunlap & Van Liere, 1978; Eagles & Demare, 1999; Schultz & Zelenzy, 1999; Schwartz, 1992; Schwartz, 1994; Schwartz, & Boehnke, 2004; Stern et al., 1995; Vaske & Kobrin, 2001). I administered the survey to 92 students in the 6 classes during class in March of 2005; the students had been in the class since September of 2004.

The first section of the survey asks for demographic information (see Appendix C). The second section of the survey is a modified version of Schwartz Value Survey (SVS) (see Appendix D). The third section of the survey consists of questions that measure environmental concern (see Appendix E).

The SVS is composed of a list of 56 values (Schwartz, 1992). Each value is associated with a “motivational value type.” The motivational value types include: self-direction, stimulation, hedonism, achievement, power, security, conformity, tradition, benevolence, and universalism (Schwartz, 1992; Schwartz, 1994; Schwartz, S.H., & Boehnke, K., 2004).

I removed 6 values from the list. Four of the values that I removed are: 1. a spiritual life, 2. meaning in life, 3. inner harmony, and 4. detachment. All associated with a theoretical motivational type, spirituality, which research has not shown to exist as a motivational value type (Schwartz 1992, 1994). I also removed ‘unity with nature’ and ‘protecting the environment’ from the SVS. Schwartz (1992, 1994) groups the values associated with caring for nature, ‘unity with nature’ and ‘protecting the environment,’ with the value type: universalism. The purpose of this research is to determine if a relationship exists between social altruism (value type: universalism) and caring for nature. Therefore, I measured values associated with caring for nature, such as “unity with nature” and “protecting the environment,” separately and did not assume they would be associated with any value type. Various researchers have modified the SVS in a similar manner, only including the value types or values that suited the focus of their study (Nordlund & Garvill, 2002; Schultz & Zelenzy, 1998; Schultz & Zelenzy, 1999; Stern, et al., 1995).

The second part of the survey consists of questions aimed at measuring environmental concern and is based on a 5-point Likert type scale (see Appendix E). To simplify the data and the graphical representations, Strongly Agree and Agree were

merged into one category: Agree; Strongly Disagree and Disagree were merged into one category: Disagree.

Most of the questions were derived from questions on surveys that have been used by other researchers to measure environmental attitudes (Dunlap & Van Liere, 1978; Eagles & Demare, 1999; Schultz & Zelenzy, 1998; Schultz & Zelenzy, 1999; Stern, et al., 1995; Vaske & Kobrin, 2001; Lalonde & Jackson, 2002). Because this study is concerned with a specific aspect of environmental attitudes (environmental concern), only certain questions from the surveys were appropriate.

The New Ecological Paradigm (NEP) scale is an instrument that has been widely used since 1978, so particular attention was placed on this scale in developing the survey for this study (Dunlap, Van Liere, Mertig, & Jones, 2000). The central focus of the NEP scale is to measure the degree to which people view humans as part of nature and the relative respect for nature in itself. I took into account criticism and revisions of the scale in the development of the survey for this study (Lalonde & Jackson, 2002; Dunlap, et al., 2000).

Before handing out the survey, I gave the students instructions. I asked them to rate each value “AS A GUIDING PRINCIPLE IN MY LIFE” using the following nine-point scale: of supreme importance (7), very important (6), (5,4, not used), important (3), (2,1, not used), not important (0), opposed to my values (-1) (Schwartz, 1992, 1994). Also, I asked them to rate the most important value and their least important value first; according to Schwartz (1992, 1994) this is useful in anchoring the responses.

Forty-two of the 92 survey participants were interviewed in April of 2005; seven students from each one of the six classes were interviewed. I interviewed 36 students and a research assistant interviewed 6 students. Each student was interviewed individually. The interviews took place during their class period, during their lunch period, and after school. Interviews ranged in time from 20 to 30 minutes.

The interviewees were chosen based on several criteria. After all of the research participants filled out the survey, I did an environmental concern-social altruism correlation analysis using SPSS. Based on the findings of this analysis (discussed in the results section), I selected students representative of eight groups. The interview questions were open ended and guided by the survey (see Appendix F). The interviews were intended to help clarify and enhance understanding of the survey responses. Also, students of different ethnicities were chosen. The nine groups that resulted from that cross-tabulation include:

1. low environmental concern and low social altruism (6 out of 9 students in this group were interviewed)
2. low environmental concern and mid-level social altruism (5 out of 9 students in this group were interviewed)
3. low environmental concern and high social altruism (no students scored into this group)
4. mid-level environmental concern and low social altruism (5 out of 10 students in this group were interviewed)

5. mid-level environmental concern and mid-level social altruism (6 out of 26 students in this group were interviewed)
6. mid-level environmental concern and high social altruism (7 out of 19 students in this group were interviewed)
7. high environmental concern and low social altruism (3 out of 3 students in this group were interviewed)
8. high environmental concern and mid-level social altruism (3 out of 6 students in this group were interviewed)
9. high environmental concern and high social altruism (7 out of 10 students in this group were interviewed)

To avoid confusion, any reference to ‘group’ is limited to one of the above listed groups. Any reference to ‘category’ is made in reference to the students’ scores for either environmental concern (high, mid-level, or low) or social altruism (high, mid-level, or low). Therefore, each student belongs to only one ‘group.’ Because each student has one score for both environmental concern and for social altruism, each student has two categories.

Confidentiality

The participants’ names are confidential. I assigned a code to each student. The students were asked to write their code on their survey—not their name. I had access to the students names and codes so that I would be able to select interviews based on survey answers and so that I could compare survey responses with interview responses. The

codes were used to match each student's survey to his or her interview. Students' responses are quoted, but pseudonyms are used.

Data Analysis

Survey.

I used SPSS software to analyze the survey data. I entered each of the 92 student's demographic data based on their survey responses. I entered each student's responses to every statement in the 'environmental concern' section of the survey, as well as one environmental concern score, one social altruism score, and a 'motivational value type' for each student.

Each student's environmental concern score is based on the sum of the numerical values assigned to each answer to the statements marked with an asterisk (see Appendix E). (The asterisks were not on the actual surveys administered.) Fifteen statements are marked with an asterisk; for each statement, a student could get a 1, 2, 3, 4, or 5, depending on their answer. So, the highest possible score was 75 (15x5). I created three categories: low environmental concern, mid-level environmental concern, and high environmental concern. The low environmental concern category (totaling 51 or less) includes students with an average score of 3.4 (51/15) or below. The mid-level environmental concern category (totaling 52-66) represents average scores ranging from 3.5 (52/15) to 4.4 (66/15). The high environmental concern category (totaling 67 or more) represents an average score of 4.5 (67/15) or above.

Average scores based on the SVS were used to determine each student's level of social altruism. Each student rated a list of 50 values, using the following nine-point

scale: of supreme importance (7), very important (6), (5,4, not used), important (3), (2,1, not used), not important (0), opposed to my values (-1) (See Appendix D). For the list of the motivational value types with their associated values refer to page 11.

For each student an average score was determined, based on his/her numerical response to each value. This score was determined using every numerical entry. Then the average value for each individual value type was determined. The value type with the highest average was the corresponding value type for the student.

The value type “universalism” as defined by Schwartz (1992) is what is referred to in this research as social altruism. I analyzed the survey data for a relationship between levels of environmental concern and motivational value type.

Because of the limited number of students and the large number of motivational value types (ten), a second determinant of social altruism was used, that would include all students. Each student has a classification of high, mid-level, or low social altruism. The score for social altruism was determined for each student based on the numerical value he or she assigned to three values associated with universalism: 1.world peace, 2.social justice, and 3.equality. These three values best represent what I refer to as social altruism. The last statement on the environmental concern section of the survey, *I care about people, even if they are not family or friends*, was also used to determine the social altruism score.

As with the environmental concern score, the number range for each category is based on the average score. For social altruism, however, the score is based on the students’ assigned number value for three values on the SVS (equality, a world at peace,

and social justice) and their response to one statement (I care about people, even if they are not my family or friends.), totaling four responses each worth at most 7. The highest value a student could have was 28, which is an average score of seven ($28/4=7$). Students in the high social altruism category have a score between 24-28 (averages between 6-7). mid-level social altruism is 18-23 (averages between 4.5 and 5.75), and low social altruism is 17 and below (average of 4.25 and below).

Once the scores for environmental concern and social altruism were determined and all of the data were entered, the data were analyzed for correlations. I ran various correlation analyses using SPSS: environmental concern scores with social altruism scores, environmental concern scores with motivational value types, environmental concern scores and class type, and environmental concern scores with class type based on schools.

Interviews.

I transcribed each of the 42 interviews. Then, I read through each interview and compared the interview responses with the survey responses, considering consistency between the responses from the two distinct data collecting methods. I coded the interviews based on the following questions:

1. Does the student have a strong connection to nature?
 - Does the student consider humans part of nature?
 - How does the student view nature
 - Does the student care for nature?
2. Does the student believe that humans are causing harm to nature?

3. Does the student believe that nature has intrinsic value?
4. What is the student's perspective for the future of the natural environment?
5. What is the student's opinion of people?
 - Does the student care about people?
6. What role does religion play in the student's view?
7. Does the student have a positive outlook?
8. Does this student care for nature and people?
9. Did the Environmental Science class have an influence on the students' social and environmental values?

Limitations

The number of participants is one of this study's limitations. The sample size was 92 students for the surveys and a subset of 42 students for the interviews. Factors contributing to this limitation include, the time and resources available and the number of students willing to participate. However, it is important to consider that in this type of research 92 survey participants and 42 interview participants is a good sample size.

Another limitation of this study is that the levels of social altruism and environmental concern for the students at the beginning of the school year were not measured. So, the influence of the Environmental Science class is not absolute. However, the focus of this research was to measure the levels of environmental concern and of social altruism and then to determine if a relationship existed between the two. This study was well suited for these measurements and comparisons.

Results

Out of 134 students enrolled in the 6 participating classes, 92 students accurately completed the survey—a 69% response rate. The students that did not participate either did not have a signed permission slip (36 students) or they did not read English (6 students). Also, five surveys were determined invalid because they were not complete or because the same response was circled for every statement, and therefore not included in the study.

From High School A, 13 out of 23 Non-Environmental Science (Physics) students participated and 15 out of 20 Environmental Science students participated. From High School B, 14 out of 28 Non-Environmental Science (Biology) students participated and 13 out of 15 Environmental Science students participated. From High School C, 15 out of 25 Non-Environmental Science students (Integrated Science) students participated and 22 out of 23 Environmental Science students participated.

From the 92 students that completed the survey, 42 were interviewed. The students' interview responses occasionally overlap in opinions and attitudes between categories; a student in the low environmental concern category may have similar responses to a student in the mid-level environmental concern category. Still, the majority of the students responded to the interview questions consistent with their responses to the survey questions. A small number of interviews were not consistent; the inconsistencies will be addressed in each group section.

Objective 1: Is there a Significant Difference between Environmental Science Students' and Non-Environmental Science Students' Levels of Environmental Concern?

The frequencies for the statements most pertinent to objective 1 are presented in graphs in Figure 1 through Figure 7. Frequencies are simply the number of students responding a particular way to a specific survey question. The graphs represent frequencies for survey responses to the statements, *I am part of nature* (Figure 1), *I care about nature* (Figure 2), *Humans are abusing the natural environment* (Figure 3), *Humans have the responsibility to change aspects of our lifestyle that cause damage to the natural environment, even if it means giving up certain luxuries, such as driving SUVs or sports cars* (Figure 4), *I consider myself an environmentalist* (Figure 5), *Humans should protect the natural environment even if it costs a lot of money* (Figure 6), and *In the future, I plan to help protect the natural environment* (Figure 7) (see Appendix E for complete list of statements). To simplify the data and graphical representations, strongly agree and agree were merged into one category: Agree. The responses strongly disagree and disagree, were merged into one category: Disagree.

The P-value (0.116) indicates that Environmental Science and Non-Environmental Science students did not differ significantly on the statement, *I am part of nature*, although a higher percentage of Environmental Science students agreed with the statement (see Figure 1). There was also no significant difference ($P=0.244$) between Environmental Science and Non-Environmental Science students' responses with respect to the statement, *I care about nature*, although again, a higher percentage of Environmental Science students agreed with the statement (see Figure 2).

There was a significant difference ($P=0.001$) between Environmental Science and Non-Environmental Science students' responses to the statement, *Humans are abusing the natural environment* (see Figure 3). There was a significant difference ($P=0.009$) between Environmental Science and Non-Environmental Science students' responses to the statement, *Humans have the responsibility to change aspects of our lifestyle that cause damage to the natural environment, even if it means giving up certain luxuries* (see Figure 4). There was also a significant difference ($P=0.007$) between Environmental Science and Non-Environmental Science students' responses to the statement, *I consider myself an environmentalist* (see Figure 5). Environmental Science and Non-Environmental Science students' responses differed significantly ($P=0.007$) with respect to the statement, *Humans should protect the natural environment even if it is costly* (see Figure 6). And finally, there was a significant difference ($P= 0.000$) between Environmental Science and Non-Environmental Science students' responses to the statement, *In the future I plan to help protect the natural environment* (see Figure 7).

Figure 1. Students' responses to the statement, I am part of nature.

Figure 2. Students' responses to the statement, I care about nature.

Figure 3. Students' responses to the statement, Humans are abusing the natural environment.

Figure 4. Students' responses to the statement, Humans have the responsibility to change aspects of our lifestyle that cause damage to the natural environment, even if it means giving up certain luxuries.

Figure 5. Students' responses the statement, I consider myself an environmentalist.

Figure 6. Students' responses to the statement, Humans should protect the natural environment even if it is costly.

Figure 7. Students' responses to the statement, In the future I plan to help protect the natural environment.

Classes and environmental concern scores: cross-tabulations.

Chi-square tests based on the cross-tabulations between 1) class type and environmental concern, 2) high school and environmental concern, and 3) class type, high school and environmental concern were used to determine whether or not a relationship was significant. The cross-tabulation between class type and environmental concern scores resulted in a significant relationship ($P=0.005$) (see Figure 8, Table 1, and Table 2). More Environmental Science students have high environmental concern scores and more Non-Environmental Science students have low environmental concern scores. The second cross-tabulation and chi-square tests represent the relationship between high school (including both Environmental Science and Non-Environmental Science classes) and environmental concern scores (see Table 3 and Table 4). The P-value (0.229) shows no significant relationship exists between environmental concern score and high school (see Table 4).

To assess the relationship between environmental concern and class type within each school, the high schools were used as a third variable in a cross-tabulation analysis with class type and environmental concern score. Although, there were too few cases to make a definitive claim, the data suggest that at two schools, High School A and High School C ($P=0.044$ and $P=0.002$, respectively), there exists a positive correlation between Environmental Science students and environmental concern, while at High School B the correlation doesn't appear to exist ($P=0.850$) (see Table 5 and Table 6). To determine what factors might have influenced a difference between the schools, the Environmental Science students were asked for the reason they took the class (see Table 7).

Figure 8. Percentage of Environmental Science and Non-Environmental Science students in each environmental concern category.

Table 1. Cross-tabulation of class type and environmental concern scores.

			Environmental Concern Score			Total
			Low, 51 and below	Med, 52-66	High, 67-75	
Class Type	ES	Count	4	32	14	50
		% within Class Type	8.0%	64.0%	28.0%	100.0%
	Non-ES	Count	14	23	5	42
		% within Class Type	33.3%	54.8%	11.9%	100.0%
Total		Count	18	55	19	92
		% within Class Type	19.6%	59.8%	20.7%	100.0%

Table 2. Chi-square results for the cross-tabulation of class type and environmental concern scores.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.677 ^a	2	.005
Likelihood Ratio	11.106	2	.004
Linear-by-Linear Association	10.538	1	.001
N of Valid Cases	92		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.22.

Table 3. Cross-tabulation of high school and environmental concern scores.

			Environmental Concern Score			Total
			Low, 51 and below	Med, 52-66	High, 67-75	
High School	A	Count	5	15	8	28
		% within High School	17.9%	53.6%	28.6%	100.0%
	B	Count	7	13	7	27
		% within High School	25.9%	48.1%	25.9%	100.0%
	C	Count	6	27	4	37
		% within High School	16.2%	73.0%	10.8%	100.0%
Total	Count	18	55	19	92	
	% within High School	19.6%	59.8%	20.7%	100.0%	

Table 4. Chi-square results for the cross-tabulation of high school and environmental concern scores.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.630 ^a	4	.229
Likelihood Ratio	5.822	4	.213
Linear-by-Linear Association	.304	1	.581
N of Valid Cases	92		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.28.

Table 5. Cross-tabulation of class type and environmental concern scores at each high school.

High School				Environmental Concern Score			Total
				Low, 51 and below	Med, 52-66	High, 67-75	
A	Class Type	ES	Count	1	7	7	15
			% within Class Type	6.7%	46.7%	46.7%	100.0%
		Non-ES	Count	4	8	1	13
			% within Class Type	30.8%	61.5%	7.7%	100.0%
	Total		Count	5	15	8	28
			% within Class Type	17.9%	53.6%	28.6%	100.0%
B	Class Type	ES	Count	3	7	3	13
			% within Class Type	23.1%	53.8%	23.1%	100.0%
		Non-ES	Count	4	6	4	14
			% within Class Type	28.6%	42.9%	28.6%	100.0%
	Total		Count	7	13	7	27
			% within Class Type	25.9%	48.1%	25.9%	100.0%
C	Class Type	ES	Count	0	18	4	22
			% within Class Type	.0%	81.8%	18.2%	100.0%
		Non-ES	Count	6	9	0	15
			% within Class Type	40.0%	60.0%	.0%	100.0%
	Total		Count	6	27	4	37
			% within Class Type	16.2%	73.0%	10.8%	100.0%

Table 6. Chi-square results for the cross-tabulation of class type and environmental concern scores at each high school.

High School		Value	df	Asymp. Sig. (2-sided)
Gilroy	Pearson Chi-Square	6.256 ^a	2	.044
	Likelihood Ratio	6.913	2	.032
	Linear-by-Linear Association	5.130	1	.024
	N of Valid Cases	28		
Pioneer	Pearson Chi-Square	.326 ^b	2	.850
	Likelihood Ratio	.327	2	.849
	Linear-by-Linear Association	.016	1	.900
	N of Valid Cases	27		
Yerba Buena	Pearson Chi-Square	12.109 ^c	2	.002
	Likelihood Ratio	15.589	2	.000
	Linear-by-Linear Association	11.782	1	.001
	N of Valid Cases	37		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 2.32.

b. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 3.37.

c. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 1.62.

Table 7. Environmental Science students' reasons for taking the class.

School	Interested in Environmental Science	Prerequisite	Boost GPA	Other
High School A	14 93.3%	0 0%	1 6.7%	0 0%
High School B	2 15.4%	3 23.1%	5 38.5%	3 23.1%
High School C	11 50.0%	0 0%	8 36.4%	3 13.6%
Total	27 54.0%	3 6.0%	14 28.0%	6 12.0%

Environmental Science students and environmental concern: interviews.

The survey data showed a significant correlation between environmental concern scores and class type existed. Determining specifically why the students in the Environmental Science classes scored into the high environmental concern category more frequently is beyond the scope of this research. However, presenting an overview of the students' perceptions of the Environmental Science class is important in developing a general understanding of the potential contributing factors. The surveys are helpful in gaining this general understanding of the contributing factors; the interviews prove particularly useful in understanding why and how the students were influenced. Because the Environmental Science students had higher environmental concern scores overall, the students' perspectives of the influence of the Environmental Science class is important to consider.

Sixteen of the 21 Environmental Science students that were interviewed said that they had gained important knowledge that had influenced their attitudes and would affect their actions in the present and in the future. Only 1 student said his attitude had not and would not change—although he believed that he gained important knowledge about environmental problems. The other 4 Environmental Science students that were interviewed were not asked whether or not their attitudes had or would change. From each school, students' responses were chosen to illustrate the various thoughts the students shared during the interviews.

Kevin from High School A said, "I'd say after the first couple class periods my eyes were immediately opened because we'd talk about so much and the information is

so rich in ideas and information that you would've never known. I would've never known." When asked if he considered himself an environmentalist, Kevin responded that he did consider himself an environmentalist but he also said:

I also have to live under my standards of my life... I know in my heart, I know in my mind after studying in environmental class that its not the best way to be living. But as of now I'm too happy with it to change it.

Like Kevin and many other students, Jeff, attributes his new attitude towards nature to the Environmental Science class, "I care about nature just because—well it's mostly this class that's just, like, educated me, like before I was probably just as ignorant as, you know, most of the people that just walk through the school." Marisol, another student from High School A, said, "I really like this class and I think that instead of being like an AP class—cause I was kinda intimidated by it... I think they should just have just a regular environmental class so more people would take it." She also mentioned the influence the class had on her goals for the future. The class, she said, "has changed a lot of my views. I had in mind to be like an architect, like since I was young, but now I want to build a house, like, energy friendly."

Jody from High School B, in response to the question, *In what ways do you think this class has changed you?* said, "I'm more aware of how the earth works and how we impact it more and just all those different things that are connected to it and how much it's gonna take to fix all the damage that we've done." Another student, Mihn said, "The class talked about hybrid cars and like electric cars and how they could help the environment." She added, "I'd be interested in buying one myself, now that I learned about it."

Chris, from High School B, one of the students with the most negative perspective of the Environmental Science class and also one of the students that scored into the low environmental concern category, said his attitude had changed. Chris said, "I've become more aware of what like my environmental impact is and what I should do to lessen it and the effect of what I do and how I could solve some of them." He thought the class would affect what he does a little bit, "I'm still gonna drive, like, to work and stuff. But maybe like just throwing the water bottles in the recycling bin and stuff like that," Chris said.

Ashley, a student from High School C, said:

I think I learned the most out of that class out of like any class I have ever taken, cause it integrates like everything in our society...after taking that class I kinda want to study environmental studies...even though [Mr. C] makes us work really hard, like he gives us a lot of homework, I think it's for our benefit. Like he makes it fun too. Like we wake up really early, but he wakes up too. Like he wakes us up when we're still asleep...the class talks about how like science and economics are integrated with like laws and everything. And just it made me like see how people are integrated, like how we're all connected. And then I think I've gotten a lot smarter because the way I view like how everything functions in our society.

Gayle, also a student from High School C, said:

I guess I had different views before and now that I've taken the class it's taught me a lot of things about nature and how I can protect it, and how it needs to be protected... I really like that class. Sometimes that I do my homework, it's the only class I do my homework for. It's a really important class to me, just because, Mr. C, like he's a really good teacher and he taught us a lot and we do so much work but it's worth it because it pays off in the learning process. We do a lot of work that prepares me for college and everything. Having a two hour class and having to wake up at 7 in the morning it's like you give so much, you have to go to sleep so early, do your homework. I like the class enough to be here at 7:00 A.M.

A third student from High School C, Rachel, said:

From the start of this class like I saw how the world was treated, you know, what's been happening and just—I mean things—a lot of bad things are happening to the world that need to like stop... [this class] taught me to care for everything, like every type of purpose in life. I mean it's a good class. I mean its fun. You learn a lot by the end. Like some other classes you don't learn anything, but from this class you learn a lot like you remember. Like in the beginning I used to not care like if somebody threw their trash on the floor or that they would throw away their food. And now I tell them like 'no, eat your food,' you know, I'm like, 'there's a garbage can right there—just throw it away.'

Only 1 student said that the class hadn't influenced his attitude. Christian said:

Everything in here is interesting and I'm glad I'm learning it. But, I really am not gonna do much about it to fix the problem. I mean I don't litter. I mean I would say that I don't ever go out of my way to—well I shouldn't say that because I mean sometimes I'll be walking down the street and I'll see trash and I'll go and pick it up. Or I always recycle the newspaper, anything like that. I'm not a slob about it, but I'm definitely not gonna go out and like start clubs and walk to school everyday, things like that—like that's not me.

So what I can do, to my convenience, I do. But if it means going out of my way, I'm not against it, I just don't really do it. It's not one of those things that's like been instilled in me. It's just not one of those passions I have in life, to help out the environment, although I do care about it. It's not inside me to go after it like I would anything else....

Honestly this class isn't for me. I took it because I had Mr. A last year for Physics and I mean I love him as a teacher, but I just don't really like the subject. I don't know how to explain it because on one sense I don't want to come off and be ignorant and just not care about the environment, but at the same time its not one of those things that's that important to me.... I do care but I'm not gonna do much about it.... I'm glad I'm learning this information, but I'm not gonna go out of my way to change my living habits.

Ethnicity.

The schools were carefully chosen to include Latino students in Santa Clara County. The only schools that had a relatively large Latino population and also offered Environmental Science in Santa Clara County were High School A, High School B, and High School C. Environmental Education research inclusive of Latinos and other

students of color is very limited. The high schools used for this study were ethnically diverse.

The ethnic makeup of the Environmental Science classes was as follows: White 20.0%, Asian 44.0%, Latino 24.0%, other/mixed 12.0%. The ethnic makeup of the Non-Environmental Science students was White 26.2%, Asian 16.7%, Latino 38.1%, and other/mixed 19.0% (see Table 8 and Table 9). Because the majority of the students at the three schools were Asian, Latino, or white, and there were no more than four students in any other ethnic group, all other ethnicities were classified as 'other.' Analysis of an ethnic group of less than four would not be statistically significant.

At High School A: white students made up 31.3% of the student population and they made up 53.3% of the Environmental Science class population, Asians made up 3.2% of the student population and they made up 0% of the Environmental Science class population, Latino made up 59.8% of the student population and 33.3% of the Environmental Science class population, students of other ethnicities made up 4% of the student population and 13.3% of the Environmental Science class.

At High School B: white students made up 51.6% of the school population and 15.4% of the Environmental Science class, Asian students made up 11.3% of the school population and 69.2% of the Environmental Science class, Latino students made up 27.7% of the population and 0% of the Environmental Science class, students of other ethnicities made up 9.3% of the school population and 15.4% of the Environmental Science class.

At High School C, white students made up 2.2% of the school population and 0% of the Environmental Science class, Asian students made up 30.3% of the school population and 59.1% of the Environmental Science class, Latino students made up 56.9% of the school population and 31.8% of the Environmental Science class, and students of other ethnicities made up 10.6% of the school population and 9.1% of the Environmental Science class.

Despite the difference in ethnic representation in the Environmental Science classes and that Environmental Science students had significantly higher environmental concern scores—ethnicity did not correlate with environmental concern scores (see Table 10 and Table 11).

One important theme that was present among the Latino students was that nature was not far removed. Nature was present in every day life. Nature was life and everything around. It wasn't always easy for these students to explain why nature was life and nature was all around—it just was. Sara said, "I'm part of nature because (she thought for a couple of seconds and then continued) cause we're, like, you know, like, right here in the world and... we live close to the trees and all the things." Another student, Jesus, said, "Nature is like the whole planet and all plants because nature is part of life and people and animals and trees and bushes. Everything is part of nature." Nature for these Latino students was the food they ate and the trees in their backyards, it wasn't limited to the forest or a camping adventure.

Table 8. Cross-tabulation of class type and ethnicity.

			Ethnicity				Total
			White	Asian	Latino	other/mixed	
Class Type	ES	Count	10	22	12	6	50
		% within Class Type	20.0%	44.0%	24.0%	12.0%	100.0%
	Non-ES	Count	11	7	16	8	42
		% within Class Type	26.2%	16.7%	38.1%	19.0%	100.0%
Total		Count	21	29	28	14	92
		% within Class Type	22.8%	31.5%	30.4%	15.2%	100.0%

Table 9. Chi-square results for the cross-tabulation of class type and ethnicity.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.028 ^a	3	.045
Likelihood Ratio	8.359	3	.039
Linear-by-Linear Association	1.874	1	.171
N of Valid Cases	92		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.39.

Table 10. Cross-tabulation of ethnicity and environmental concern scores.

			Environmental Concern Score			Total
			Low, 51 and below	Med, 52-66	High, 67-75	
Ethnicity	White	Count	5	9	7	21
		% within Ethnicity	23.8%	42.9%	33.3%	100.0%
	Asian	Count	7	19	3	29
		% within Ethnicity	24.1%	65.5%	10.3%	100.0%
	Latino	Count	4	17	7	28
		% within Ethnicity	14.3%	60.7%	25.0%	100.0%
	other/mixed	Count	2	10	2	14
		% within Ethnicity	14.3%	71.4%	14.3%	100.0%
Total	Count	18	55	19	92	
	% within Ethnicity	19.6%	59.8%	20.7%	100.0%	

Table 11. Chi-square results for the cross-tabulation of ethnicity and environmental concern scores.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.247 ^a	6	.396
Likelihood Ratio	6.460	6	.374
Linear-by-Linear Association	.309	1	.579
N of Valid Cases	92		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is 2.74.

Objective 2: Is there a Significant Difference between Environmental Science Students' and Non-Environmental Science Students' Levels of Social Altruism?

Most of the students did not believe that people cared about nature (see Figure 9). However, when asked if they cared about nature, most students in both Environmental Science and Non-Environmental Science classes stated that they did care for nature (see Figure 2).

The majority of students said they did care for people, even strangers (see Figure 10). A greater percentage of Environmental Science students stated that they cared for people (see Figure 10). But, there was no significant correlation ($P=0.329$) between class type and students' statements about whether or not they cared for people.

The cross-tabulation between class type and social altruism scores ($P=0.607$) also resulted in a non-significant relationship (see Figure 11, Table 12, and Table 13). The greatest percentage of both Environmental Science and Non-Environmental Science students were in the mid-level category (see Figure 11).

The students were asked if they believed that a person who cared for nature would also care for people. The majority of both Environmental Science and Non-Environmental Science students agreed (see Figure 12). In the interviews, 22 students said they believed that caring for nature was related to caring for people, 10 of the students were uncertain, and 2 of the students did not think caring for nature was related to caring for people. No answer is available from 8 students (the question was added after they were interviewed).

The students had a range of opinions on the idea that caring for people is connected to caring for nature. Some students believed that people were part of nature and dependent on nature, and so some thought definitely they were connected. Other students believed that general respect and caring transfers to all facets of a person's life, and other thought that it depended on each individual person. Just 2 students simply believed that nature and people were separate and did not acknowledge a connection.

The students' responses provide insight as to why the students do or do not believe a relationship exists, and their opinions of this relationship may provide insight as to why the relationship may or may not be true. Lupe responded:

I think if I care for nature it's the same thing as caring for someone because trees are what makes houses, right. And I mean we need the environment to keep people alive and that's why I think, you know, if we keep the environment safe then we keep people safe.

Some of the students who were uncertain about how or whether caring for nature and caring for people were connected supposed that a person who is caring or respectful to nature would logically be caring and respectful in general. For example, John said:

The fact that you're caring about something kinda puts you in like a different mood to care about other things and so I don't think its like directly nature and people are related, but I think it's just the type of mood or the type of feelings you have about helping things that makes you care about people.

Other students that were uncertain about the connection believed that caring for nature could be connected to caring for people, but that it wasn't necessarily so and that ultimately it depended on the individual. Jody's response to the question was:

Yes and no. Some people care more about nature than they do people. I mean there's just different standpoints when it comes to environmentalism. Some people value nature more and some people want to have harmony between nature and people. And some people just want to help other people. I don't know.

The 2 students that didn't think that caring for nature was at all related to caring for people, perceived people and nature as being separate. Marisol said:

I don't tie people with the environment. I mean you do, but not the way I treat people. I don't see how caring for nature—I mean although we are part of nature, like, I think we're separate from it. I don't know I don't think we're the same thing.

Figure 9. Students' responses to the statement, most people care about nature.

Figure 10. Students' responses to survey statement number 25, I care about people.

Figure 11. Percentage of Environmental Science and Non-Environmental Science students in each social altruism category.

Table 12. Cross-tabulation class type and social altruism scores.

			Social Altruism Score			Total
			Low, 17 and below	Middle, 18-23	High, 24-28	
Class Type	ES	Count	10	24	16	50
		% within Class Type	20.0%	48.0%	32.0%	100.0%
	Non-ES	Count	12	17	13	42
		% within Class Type	28.6%	40.5%	31.0%	100.0%
Total		Count	22	41	29	92
		% within Class Type	23.9%	44.6%	31.5%	100.0%

Table 13. Chi-square results for the cross-tabulation of class type and social altruism scores.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.999 ^a	2	.607
Likelihood Ratio	.997	2	.607
Linear-by-Linear Association	.600	1	.439
N of Valid Cases	92		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.04.

Figure 12. Students' responses to the statement, Caring for nature is related to caring for people.

Objective 3: Is there a Relationship between Environmental Concern and Social Altruism?

The relationship between environmental concern and social altruism is the focus of this research. Environmental concern scores and social altruism scores were analyzed independent of class type. Two statistical relationships were assessed to determine whether or not a relationship existed between these two variables. The first was a chi-square test between environmental concern scores and motivational value types. The second and most pertinent was a chi-square test between environmental concern scores and social altruism scores.

The cross-tabulation table and chi-square tests shown in Table 14 and Table 15 represent the relationship between environmental concern scores and the SVS motivational value types. The P-value (0.074) does not show that a significant correlation exists (see Table 15). Given a sample size of 92 students, a more adequate cross-tabulation analysis for this study is between environmental concern scores and social altruism scores. The chi-square tests for the social altruism and environmental concern cross-tabulation show that a highly statistically significant relationship exists ($P=0.003$) (see Table 16 and Table 17).

There are nine combinations of social altruism and environmental concern categories. So there are a total of nine groups (as previously mentioned) (see Table 16):

1. low environmental concern and low social altruism (9 students, 6 were interviewed)

2. low environmental concern and mid-level social altruism (9 students, 5 were interviewed)
3. low environmental concern and high social altruism (no students scored into this group)
4. mid-level environmental concern and low social altruism (10 students, 5 were interviewed)
5. mid-level environmental concern and mid-level social altruism (26 students, 6 were interviewed)
6. mid-level environmental concern and high social altruism (19 students, 7 were interviewed)
7. high environmental concern and low social altruism (3 students, 3 were interviewed)
8. high environmental concern and mid-level social altruism (6 students, 3 were interviewed)
9. high environmental concern and high social altruism (10 students, 7 were interviewed)

Table 14. Cross-tabulation of environmental concern scores and motivational value type.

Environmental Concern Score	Low, 51 and below	Value Type										Total
		Self Direction	Achievement	Power	Conformity	Tradition	Security	Simulation	Hedonism	Benevolence	Universalism	
Med, 52-60	Count	2	2	1	4	0	1	4	3	1	0	18
	% within Environmental Concern Score	11.1%	11.1%	5.6%	22.2%	.0%	5.6%	22.2%	16.7%	5.6%	.0%	100.0%
	Count	0	7	0	9	1	2	5	10	9	2	64
High, 61-75	% within Environmental Concern Score	16.7%	13.0%	.0%	16.7%	1.6%	3.7%	9.3%	18.5%	16.7%	3.7%	100.0%
	Count	4	1	0	3	0	0	1	1	3	0	19
	% within Environmental Concern Score	21.1%	5.3%	.0%	15.8%	.0%	.0%	5.3%	5.3%	15.8%	31.6%	100.0%
Total	Count	16	10	1	10	1	3	10	14	13	8	91
	% within Environmental Concern Score	16.5%	11.0%	1.1%	17.6%	1.1%	3.3%	11.0%	15.4%	14.3%	9.8%	100.0%

Table 15. Chi-square results for the cross-tabulation of environmental concern scores and motivational value type.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.279 ^a	18	.074
Likelihood Ratio	25.388	18	.115
Linear-by-Linear Association	1.035	1	.309
N of Valid Cases	91		

a. 24 cells (80.0%) have expected count less than 5. The minimum expected count is .20.

Table 16. Cross-tabulation of environmental concern scores and social altruism scores.

			Social Altruism Score			Total
			Low, 17 and below	Middle, 18-23	High, 24-28	
Environmental Concern Score	Low, 51 and below	Count	9	9	0	18
		% within Environmental Concern Score	50.0%	50.0%	.0%	100.0%
	Med, 52-66	Count	10	26	19	55
		% within Environmental Concern Score	18.2%	47.3%	34.5%	100.0%
	High, 67-75	Count	3	6	10	19
		% within Environmental Concern Score	15.8%	31.6%	52.6%	100.0%
Total	Count	22	41	29	92	
	% within Environmental Concern Score	23.9%	44.6%	31.5%	100.0%	

Table 17. Chi-square results for the cross-tabulation of environmental concern scores and social altruism scores.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.851 ^a	4	.003
Likelihood Ratio	20.044	4	.000
Linear-by-Linear Association	12.531	1	.000
N of Valid Cases	92		

a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 4.30.

Environmental concern and social altruism correlations: interviews.

Forty-two of the 92 students who took the survey were interviewed, 21 Environmental Science students and 21 Non-Environmental Science students. Each student's interview was determined to be a good fit or not with the group that they scored into based on their survey responses. Seven students from each one of the six classes were interviewed. Students of different ethnicities were chosen. Also, students were chosen from each one of the groups that resulted from the environmental concern survey scores and social altruism survey scores cross-tabulation analysis. Students were chosen based on these criteria from the nine groups (see list of groups and number of students interviewed from each group on page 73).

The results are presented by group beginning with the low environmental concern and low social altruism group. To gain a stronger understanding of the groups resulting from the environmental concern and social altruism cross-tabulations (based on the surveys) and also to gain overall confidence in the survey results, the interviews were closely analyzed. The focus of this interview analysis was to identify consistency with survey responses and differences and similarities between categories and groups. A summary of the themes within each group is presented in Table 18.

Table 18. Interview results: environmental concern and social altruism relationships.

Group	Environmental Concern	Social Altruism
1. Low Environmental Concern and Low Social Altruism	Students lacked knowledge of, hope for, and appreciation of the natural environment.	Students lacked hope for a more just world and lacked a sense of responsibility for social justice.
2. Low Environmental Concern and Mid-level Social Altruism	Students lacked appreciation for and knowledge of the natural environment.	Students cared for people, but lacked motivation to work to improve social conditions.
3. Low Environmental Concern and High Social Altruism	No students in this group.	No students in this group.
4. Mid-level Environmental Concern and Low Social Altruism	Students cared for nature because of its value to humans, but lacked motivation to take action.	Students lacked hope for a just world and lacked a sense of responsibility for social justice.
5. Mid-level Environmental Concern and Mid-level Social Altruism	Students cared for nature, but lacked motivation to take action.	Students cared for people, but lacked motivation to take action.
6. Mid-level Environmental Concern and High Social Altruism	Students cared for nature, but lacked motivation to take action.	Students cared for people, expressed motivation to work for social justice, and didn't idealize people
7. High Environmental Concern and Low Social Altruism	Students expressed a deep appreciation and sense of responsibility for nature.	Students expressed concern for oppressed people of the world and expressed great disappointment in humanity.
8. High Environmental Concern and Mid-level Social Altruism	Students expressed a deep appreciation and sense of responsibility for nature.	Students cared for people, but had a low opinion of people in general.
9. High Environmental Concern and High Social Altruism	Students expressed a deep appreciation and sense of responsibility for nature.	Students cared for people and expressed a motivation to help people, but had mixed opinions of people in general.

Low environmental concern and low social altruism group.

Six students from the low environmental concern and low social altruism group were interviewed. Two of the interviewed students were Environmental Science students and 4 were Non-Environmental Science students. The students in this group had interview answers consistent with their survey scores.

Based on the interviews it became apparent that these students lacked at least one of these three things: 1) knowledge of environmental issues, 3) hope for a healthier environment, and/or 3) appreciation of nature. Similarly, in regards to social altruism, the students lacked two things: 1) hope for a more just world and 2) a sense of responsibility to people in need.

In response to questions about the environment, 3 of the students in this group didn't lack knowledge of environmental issues, but they suggested that reaching a point of environmental sustainability was a hopeless aim. They believed that human attitudes made it impossible for positive change to occur. "If I'm not gonna destroy it," said Chris about the natural environment, "someone else will. People say they care, but they don't really do anything to show that they care." Another student in this group, Mike, said:

I don't think it's possible to change because there's more and more people everyday, so it's gonna be really hard to change.... I think [environmentalists] probably do the opposite of what they're saying, cause most people don't even support what they think.

The other 3 students in this group lacked an understanding of environmental issues. "It's a big world," said Cody, "so, I don't think clean air is a problem." Another student in this group, Jacob, said, "I hear all those like facts about 'we're destroying 25%

of our rainforest everyday,' you know, all that kinda stuff or whatever. But I really, I don't know, exactly what's going on."

The third thing lacking was appreciation of the natural environment. "I think in someway it's just nice looking at a tree, but if it really doesn't affect me that much or benefits me then I don't think it has the worth, but because they do and they benefit us that's why I think they have worth," said Jin.

Almost for the same reasons, the students seemed to fall into the low social altruism category; in regards to social altruism, hopelessness and a lack of a sense of responsibility for people in need were two things that stood out among the students in this group. Although lack of knowledge didn't seem to be a direct factor for lack of social altruism, as it was for environmental concern, the lack of responsibility to others may indicate a lack of knowledge of social factors influencing social injustice. Also, the students in this group expressed the belief that people have the capacity for both good and for bad; they didn't believe that all people were good or that all people were bad.

Four of the students expressed the belief that there was nothing they could do that would make a difference. "Society is like a one way thing. Like the mean stay mean and the selfish are selfish, the good stay good," said Mike. In regards to seeing people get treated unfairly, Mike said, "It makes me feel horrible. Its like I want to make them live better but there's nothing I can do." Another student, Jin, said, "I wish there would be more equality. But that's not achievable because people are so corrupt and we are really greedy for many things." "I feel bad [when people are treated badly], but I guess there's

nothing I can do about it,” said Angie. Angie also said that she cared about people and that she didn’t like to see them suffer.

Two of the students among those who felt that there was nothing they could do about injustice had trouble grasping the meaning of social justice and equality. These 2 students responded with very short answers, many of their responses were, “I don’t know.” For example, in response to, *how important do you think equality is?* Angie said, “I don’t know. I don’t really get it.” After, I asked the same question in different words, her answer was that she guessed it was important.

Aside from the 4 students in this group who felt that nothing could be done to change unjust conditions, 2 students in this group believed that it wasn’t their responsibility to improve unjust conditions—in addition, hopelessness was also an issue for these 2 students. One of these students, Jacob, said the following:

I think that some cases it’s our responsibility to help other people, like children or whatever, that aren’t being treated fairly in another country or whatever. That maybe we should help those people out. On another note, I think that that country should, you know, do something about it. Just cause it’s not really a business I guess. I don’t know. I don’t know. I guess, like, I kinda see it like it’s not our business, but it could be—I guess. I don’t know.

While the other, Chris, thought that the existence of war might actually be a beneficial aspect of human society because it limits the population. He said:

Having world peace, it’d be good cause then no one would be dying from wars. Then there’s not really a population check. There’s not really something that checks the population, sort of, cause people die in wars. It slows down population growth, sort of, and I think it’s important to keep the population low or what it is right now.

Chris later said, “I feel that I should do something about [injustice] but its like I guess I’m too lazy to do something about it. But I really do care about like things that happen to other people.”

All of the students in this group understood to some degree that we face social and environmental problems. Some of these students had more knowledge than others about certain problems. Also, the students cared to a certain extent; yet, the students didn’t express any motivation to work to address either social or environmental problems.

Low environmental concern and mid-level social altruism group.

Five students from the group, low environmental concern and mid-level social altruism, were interviewed. Two of the students were Environmental Science students and 3 were Non-Environmental Science students. All of these students had interview answers consistent with their survey responses with regard to social altruism, but only 3 seemed to have interview answers consistent with their survey answers relating to environmental concern; the 2 students that did not seem to have consistent responses, Melissa and Minh, gave answers that were more consistent with mid-level environmental concern.

In regards to environmental concern, the students’ responses in this group were similar in two ways to the students’ responses in the previous group; 1) these students lacked appreciation and 2) knowledge of the environment. In addition, a third theme among these students was that they 3) lacked motivation to work for change. And, as with the first group the students’ attitudes didn’t reflect any interest in purposely harming nature. In regards to people, two things were apparent: 1) the students in this group

expressed a sense of caring for people, but 2) not a strong motivation for action.

Hopelessness was not apparent in this group as it was in the first group, neither in their perspective of people nor in their outlook on the environment.

The 3 students that responded to the interview questions consistent with their survey scores in regards to environmental concern either lacked knowledge or appreciation for nature and as a result motivation. "I'm not gonna do all that much just to help fix it [the environment], even though I know we should. Just like I said, its not one of those passions that really drive me," said Christian.

The other 2 students believed that environmental problems weren't serious. One of these students, John, commented:

I think they [environmentalists] put a little too many restrictions on things or worry a little too much about things. Like, I ride dirt bikes and I know there's certain places they won't let us ride or certain times of the season cause they don't want it to hurt the environment. So things like that I don't really care for.

John also said that he cared about nature because it was part of our environment and provided opportunity for recreation. The third student, Stephanie had similar sentiments to John's. She said she cared about the environment but that she didn't think that environmental problems were pressing. Stephanie said:

I care about nature. I think I'm kinda in the middle. I can see both sides of it. I think a lot of people care about the environment and don't want to waste pollution and whatever and try to infect it with everything that humans use. But then I think a lot of other people don't care and just build malls wherever and tear down trees cause it doesn't really matter cause there's, you know, millions everywhere, of like trees and plants and everything.

The 2 students that didn't seem to fit well into this group, Minh and Melissa, expressed more caring for the environment than would be expected from their low

environmental concern score. Although Minh didn't express a strong commitment to work for environmental protection, he showed more concern for the environment than a low environmental concern score suggests. Minh said:

Well I think I do care [about nature] cause, um, I guess I like peaceful things and out in nature there's not much noise. You can like enjoy yourself—be alone if you want to be. And uh, I do my best to like not do anything that's bad and like I don't try to intentionally hurt other animals.

Minh's low survey score resulted because he mainly chose neutral answers. He didn't feel strongly about any of the statements in the survey.

Based on her interview answers, Melissa appears to care very much for the natural environment and has strong pro-environment opinions. Her interview responses about the environment are not reflective of her low environmental concern score on the survey.

Melissa said the following:

We are abusing nature by chopping down trees and stuff. I'm religious so like god put trees and the plants and animals here for a reason... and its not to be chopped down... It's a part of god, it's a part of our world and without it we would have no breathing air, no nothing to like hear. It'd just be a bunch of cars. You wouldn't hear any birds or wouldn't see any squirrels or anything around, like animals, or, you know, there wouldn't be any flowers to look at. It'd just be a dull place.

In regards to people, all students in this group shared a similar perspective of people. They each expressed a sense of caring for people, but not a strong motivation for action. The student did express interest in issues related to social justice, although this interest wasn't necessarily a priority for them. The students in this group seemed more inclined to help people in need than the students in the first group. These students seemed willing to give people a chance and to help people in need. They weren't likely to dedicate their lives to social justice, but they believed in equality and social justice.

The students in this group were significantly different from the students in the first group in that hopelessness was not obvious. Lack of responsibility for others was also not expressed.

“Every person in the world, whether you’re like the poorest person ever or like a movie star, like, you should all be treated with the same amount of respect ...everyone’s equal,” said Stephanie. The students in this group also expressed a desire to see people in need get help. “I guess, like, if I saw someone in danger I would try my best to help them out cause I don’t like seeing people get hurt or anyone dying. It kinda makes me sad,” said Minh.

The students perceived people as generally good, but they also acknowledged the negative attributes of people. “I think every person has good in them somewhere. Sometimes people don’t think that, and I try to look for the good in people because I know that everybody’s got something good about them. People are generally good,” said John. And Melissa said:

I love people. There’s some people that you could work with; there’s some people that you can’t. All people are great. They were born great. Its just there’s some people out there that are a little wacked out... We’re all the same on the inside. God gave us all the same heart.

The students in this group cared about nature at a surface level. They didn’t acknowledge a need to protect nature—except for Melissa. The students did express interest in issues related to social justice, although this interest wasn’t a priority for them.

Mid-level environmental concern and low social altruism group.

Five students from the mid-level environmental concern and low social altruism group were interviewed. Four of the students were Environmental Science students and 1

was not. The students' interview responses were consistent with their survey scores in regards to environmental concern. In regards to social altruism, 2 students responded to the interview questions ambiguously, Marisol and Gayle. They seemed to fit better in the mid-level social altruism category. The other students fit reasonably well into the low social altruism category.

Two themes were apparent among the students in this group in regards to the environment: 1) the students seemed to care for nature because of it's value to humans and not necessarily because they felt that nature had intrinsic value; also, 2) these students did not care enough to take action. In regards to social altruism, as in the first group—low environmental concern and low social altruism—the students lacked two things: 1) hope for a more just world and 2) a sense of responsibility to people in need.

There was a clear distinction between this group and the previous groups (the previous groups were low environmental concern groups). The main difference between these students and the students in the prior groups was that either they had more knowledge of environmental problems or that they did not see environmental problems as overwhelming. The students in this group didn't seem to have a strong appreciation for nature in itself, rather they appreciated nature for what nature provides to humans.

Some of the students in this group acknowledged that they should be more active in protecting nature to claim they really cared about it. "I care about nature to like a certain point. I'm not all environmental, but I care about nature," said Gayle. "I think I could get more involved and try to do more things.... what we're doing now won't really affect us but it will affect the next generation and the generation after that" said Marisol.

The students in this group didn't seem to have a strong appreciation for nature in itself rather they appreciated nature for what nature provides to them. One of the students, Anthony, commented that nature provides "good scenery." "But I don't like to like step my foot on it," said Anthony, "cause it's disgusting, a lot of worms, animals, stuff like that." He also said that he thought nature was important because without it humans could not inhabit the earth. Kevin, said:

I don't think we've, like, realized how important it is, so we take advantage of it and we don't think it's the future of, like, what's gonna be happening and what we're doing is really harming the earth and the natural environment. We're the smartest beings on Earth, according to man, and we do have a responsibility to take care of the Earth and we do have a responsibility to change the things that are harming. I think the top priority should be take care of nature for us.

In regards to people, although these students scored into the low social altruism category, they expressed discontent with the maltreatment of people. The students also expressed the belief that nothing they could do would change social injustice. Their concern for people was not a primary concern of theirs and was not enough to compel them to do something or to feel that it was their responsibility to do something about it (except for Marisol who helps to feed the homeless). Marisol and Gayle had interview responses that seemed to fit better in the mid-level social altruism category than in the low social altruism category.

Exemplifying the attitude of resignation, Anthony said, "it'll be nice to achieve equality, but I don't think it will ever happen. Another student, Peter said:

Most people won't spend money to help people, like won't use their, like, resources or anything to help them cause it costs too much or it's too far, you know... It's kinda hard in some situations to help a person. The only thing you can do is go on your own way and hope for the best for that person. You wanta help but you can't.

Another student, Kevin, stated that he opposed helping people on a global scale.

Although he sympathized with people in harsh situations, he also blamed them:

I believe that everybody has a consequence for what they do. And a child that is poor has been suffering the consequence for something that their parents did... something that has made them now have that kind of lifestyle. But, you know, you can't tell a child, 'oh you're poor because you don't go out and work.' But they're just a child.

I believe that we should all realize that yes there are millions of kids out there that have no families and millions of kids out there that have no money, and we should all be working together to change that. But, someone that was being treated unfairly or very poorly, my heart goes out to them. I believe that people have great responsibility to do that, but some of this kinda goes into other things about our country.

We should work on our ourselves and our surroundings before we try to help other people. Because if we're not stable enough in our country or stable enough in our households how do we expect to go and help these millions of other people that have problems that we still have hundreds of problems that we haven't even dealt with. So it's kinda like spreading the workload of somebody that already has so much to do. Like, its like a good, it's a good notion in your head and it's a good idea, but then look at the consequences that are to come from them. Kids might be able to get food, but then there are people in our country that are the same, that don't have any food.

An interesting commonality among these five individuals (including Gayle and Marisol) is that they don't have a generalized view of people, rather they stated that everyone was different. "Every individual's different from each other, some people have nice personalities some people are mean and judgmental. So I think all people are different depending on how they're raised and what they know and what they grow up around," said Marisol. Gayle said, "I'd have to say that some people, ya they are trustworthy and good, and there are some people that just aren't. I think there're both."

Gayle and Marisol, the 2 students that didn't fit well into the low social altruism category, responded to the interview questions with more compassion for people than

their survey score would suggest. Marisol helps to feed the homeless and Gayle said that it was important to care about homeless people. “Whenever I see a homeless person,”

Gayle said:

I give them a dollar. I think its important to care for them because they’re part of our community and if they’re suffering it’ll hurt the community too, because they have no job no money and they’re asking and they’re hungry and they’re cold, sick.

These 2 students scored into the low social altruism category because they placed no value on world peace or caring for others in their surveys. Their interview answers, however, reflected a caring attitude towards people. It is not clear why they gave no value to world peace or to caring for others on their surveys.

This group of students had a greater appreciation for nature than both previous groups, which were both low environmental concern groups. The students in this group cared for nature because they understood the importance of a healthy environment in relation to human well-being. But still, these students did not express motivation to take action to help protect nature. This group was similar to the first two groups in regards to their attitudes towards people. They cared about people, they agreed that there was injustice in the world, but they had no motivation to stand up against it. Mostly the students didn’t believe that it was their responsibility to care for people in need and they presented reasons defending their position.

Mid-level environmental concern and mid-level social altruism.

Six students from the group, *mid-level environmental concern and mid-level social altruism*, were interviewed. One student was an Environmental Science student and 5 were not. The students in this group responded to the interview questions

consistently with their survey answers, with the possible exception of Tony. There was variation within this group in regards to the students' positions on the environment and people—which seems logical with a mid-level category. All of the students in this group cared for both, people and the environment, but none has an apparent outstanding concern for the environment or for social justice.

Two things stood out in regards to the students' stance on environmental issues: 1) they cared, but 2) no action was taken. The same was true for social issues, again 1) they cared for people, but 2) they didn't care enough to take significant action. This group had the highest number of students in it.

The students in this group had varying perspectives, but still the students fit well in the mid-level category. The range in perspectives resulted because some of the students scored close to the 'high' categories in the survey, or very close to the 'low' categories in the survey for either social altruism or environmental concern.

Overall these students seemed to care more for nature than did the students in the previous groups. These students cared and they acknowledged the importance of caring; they believed that the natural environment was important and that it should be protected. They did not, however, care enough to make the environment a top priority. They were not motivated to take action. "It's important to take care of the earth because that means people are protecting themselves... I would say I care [about the environment], but it wouldn't be like my most important thing," said Jesus. Another student in this group, Jeff, said:

I'm not like a super environmentalist. Like I respect it. Its not like I'm gonna go out of my way and do stuff that's like real good for the environment but I'm

aware of it, but I'm not ignorant about it you know. I just try and watch what I do, make sure I don't do anything too stupid.... I think we're completely, completely, abusing nature—just from what we've done the last couple hundred years, like, after, like, the technological revolution. Just been destroying the earth and we see signs of it everyday. So, I mean its pretty clear and we—most people just try to look the other way, ignore and don't pay attention to it... I'll probably take a little more action like later on in my life.

Tony, the student that didn't quite seem to fit in this group, had very short answers to all of the questions. He began by saying, about nature, "It's wonderful, it's full of life. It's really beautiful." He also said that nature had intrinsic value and that humans don't have the right to pollute it. But when he was asked if he cared about nature, he responded, "not a lot." Tony's answers didn't connect with each other logically, so it was hard to determine which group he fit best into.

Although the students in this group seemed to care more about the environment than the students in the previous groups, the groups are similar in that they do not have enough motivation to act to help protect nature.

In regards to responses relating to social altruism, these students were very similar to the students in the low environmental concern and mid-level social altruism group in that they expressed a sense of caring and compassion for people, but action was not a result of their caring and compassion.

The students in this group believed that people were a mix of good and bad, while the students in the low environmental concern and mid-level social altruism group believed people were generally good. Also, all of the students in this group had in common the belief that people in need should be helped, including homeless people and the poor. They expressed compassion for people in general. "I wouldn't wanta see

someone like get hurt just because, you know, it doesn't matter if I know the person. It would affect me," said Jeff. Lupe said:

Everyone is put here on the earth for a reason and everybody has to like look for why they're here. People to me are special in like their own way. Everyone's valuable in their own way, everyone has something good about them, everyone has something bad about them. If its someone that I know that's being treated bad then its like I feel its my problem to take care of it cause I don't want to see someone that I know getting hurt. Even if I don't know you, I still don't want to see people getting hurt.

These students are similar to the other students in the mid-level social altruism categories from the different groups, in that they expressed a general sense of caring and compassion for people.

With regard to Tony, once more, his responses were ambiguous. He said that he didn't care about people who were not his family or his friends, and he said that people were mostly bad, but he also said that it was important to care about homeless people. He felt caring for the homeless was important because, "they don't have a home. They don't have nothing to eat. They don't have money," said Tony. He also thought it was important to care about poor people in other countries for the same reasons he thought people should care about the homeless.

This group of interviewees fits the profile of the mid-level group very well. All of the students in this group cared for both, people and the environment, but none placed nature or social justice as a top priority. The range of perspectives was from close to low to close to high for environmental concern and social altruism categories. Even Tony had a range of answers that seemed to fit somewhere between the high and low categories for both environmental concern and social altruism.

Mid-level environmental concern and high social altruism.

Seven students from the group, mid-level environmental concern and high social altruism, were interviewed. Three of the students were Environmental Science students and 4 were not. The students in this group had interview answers consistent with their survey answers.

The same two things stood out in regards to the students' stance on environmental issues as stood out with the two previous mid-level environmental concern groups: 1) they cared about nature, but 2) no action was taken. Three characteristics in these group members related to social altruism that were key include: 1) they cared about people, 2) they expressed more motivation to work for social justice than previous groups, and 3) although they were in the "high social altruism" category, they didn't idealize people. In regards to social issues the students in this group had clearly distinct perspectives from the students in the low and mid-level social altruism categories.

As all other students in the mid-level environmental concern category, these students cared about nature and believed in the importance of a healthy planet, but the natural environment was not necessarily one of their priorities—although there were students in this group with responses very similar to the responses of students in the high environmental concern category. One student, Thomas, said:

We definitely should change, cause at this point the earth is the only place that, you know, humans really can populate and can grow. And as of now humans are overpopulating the earth and using up the resources even faster. So it's our responsibility to change... Be it by converting to electric cars, be it by more people eating natural foods, and only using the resources that we have and lowering the supply and demand for meat and wood and all the natural resources.

More characteristic answers from mid-level environmental concern students include Amy and Phuong's comments, which were previously noted. "I care about [nature], but I'm not really overtop with it or anything," said Amy. "I think the natural environment is nice and it's something we should preserve for like future generations to enjoy. I don't have that strong opinions about the environment, but I do care about it and I want to help protect it," said Phuong.

Although the students care about nature, it doesn't seem to be their top concern—these students did seem to prioritize people, however. The students in this group expressed a strong commitment to helping people and caring for people. Some of the students said that one of their most important goals in life was to help people. One student, Jana, said that she'd like to be like Mother Theresa. She also said, "we're all, you know, people. So, like, we should care about each other, because if we don't care about each other then who will, you know. And we're just very important to each other." Another student, Thomas, said:

It's shocking when you see someone being, you know, strictly just being treated badly for the sake of being, you know, treated badly, you know, or mistreated for no reason. And even if there is a reason, it's, it's not really justifiable cause you just have to, you know, there's never really a straight reason for being mean or unkind to someone. I mean we all have those feelings, but you have to stop and think about it and then you realize, you know, that there's no reason to be mean or unkind.... Well, as I said every person, you know, deserves to be treated fairly. If a person's homeless or doesn't have a job you have to—even for them, even if you don't know them you have to lend a helping hand if you can, maybe, you know, spare change or a meal or donate food. So, you know, they can at least get a sense of feeling of hope or happiness in their life.

Like students in other groups, the students in this group believed that there were all types of people. "We can never like get enough. We get that, and then we want more

and more and more and more. So we are greedy actually. But then on the other hand we're trying to be nice to people as possible," said Jana. "You know, there's mean people and there's nice people, all kinds of people," said Sara.

The students in this group had similar perspectives to the students in the other groups with mid-level environmental concern categories—they cared for nature, but didn't prioritize it as a concern of theirs. These students' attitudes towards people were significantly different from the previous groups, in that these students expressed high concern for people.

High environmental concern and low social altruism.

All 3 students from the group, *high environmental concern and low social altruism*, were interviewed. Two of the students were Environmental Science students and 1 was not. Two of the students in this group had interview answers consistent with their low social altruism survey scores—1 did not. All 3 students had interview responses consistent with their high environmental concern survey scores.

Marking a clear shift from students in the low and mid-level environmental concern categories, two things were evident in the responses of the students in this group: 1) a deep appreciation of nature and 2) a sense of responsibility to nature. In regards to their social altruism scores, these students were significantly different from the students in the other groups that also had students with low social altruism scores. The students in this group: 1) expressed concern for the oppressed, and 2) expressed disappointment in the lack compassion within people.

All 3 students felt that the environment was very important and that it was in need of protection. As expected from students in the high environmental concern category, these students had a strong sense of environmental appreciation and felt that it was important for people to care for and protect the natural environment. These students also acknowledged that humans have a responsibility to maintain a healthy planet. One of the students, Susan, said:

I'd love to save the environment. That's one of my—sort of just a passion, talking about it. I would love to be able to, you know, change the way things are, you know, spread information, show and help the population become educated in those issues and have them individually start changing piece by piece through education.

Sandy, another student, said:

I feel that the loss of entire species and populations is mostly our fault and though not much attention is put on it in like everyday life, it's still happening.... I think that we should try to preserve our earth. Otherwise we don't really have a place to live... We have the responsibility to take all sorts of problems into our own hands and fix them.... I have a great respect for people that would take time out of their life and even money to try to help our world and do something that they believe in.

In regards to social altruism scores, 2 of the students in this group had interview responses that were consistent with their low social altruism survey scores, and 1 student did not. Although 2 of the students had answers consistent with the low social altruism survey responses, they differed notably from the other students in the low social altruism category within the other groups. These 2 students expressed a high level of concern for oppressed people. Their low social altruism score on the survey resulted from their low opinion of people, not from their lack of consideration for people.

Both of these students expressed empathy for the homeless and the poor, and they believed that the society had the responsibility to help people in need. But, they both also mentioned their low opinion of Americans. “I feel that our country, we’re kind of gluttons. We take a lot of things for granted. I don’t have much respect for most people that I just meet, because we’re rude and incompetent,” said Sandy. “I think most humans, like Americans, are really not knowledgeable about nature and really apathetic towards it,” said Ashley.

Susan was the student that had answers that were consistent with her high environmental concern score, but not her low social altruism score. None of her interview answers revealed any indication of low social altruism. Her interview answers in regards to caring for people were more similar to individuals with mid-level or high social altruism scores. Susan stated:

I think people have the ability to all be nice and kind and that sort of thing, but some aren’t. So, it just varies... I have a love for all humans, and, you know, like they did make wrong choices but they are still human and they still have feelings.

In examining her survey answers in detail, the discrepancy between her survey score and her interview responses appears to be in her scoring of the values; she used very few sixes (very important) or sevens (of most importance) and she used mostly threes (important); thereby reducing her score considerably in comparison to most students who used 7 and 6 more often. None of her survey answers reflected negative valuation of people.

A difference between this group and the previous groups is apparent; these three students expressed notably higher valuations of the natural environment. In regards to

social altruism, again, the difference between this group and previous groups is apparent. Their low social altruism score appears to stem from their disappointment in people's indifference to social injustice, rather than from their own indifference. These students seemed to care very much about people in need.

High environmental concern and mid-level social altruism.

Three students from the group, high environmental concern and mid-level social altruism, were interviewed. All 3 were Environmental Science students. The students in this group all had interview responses consistent with their survey answers.

Just as the previous group, high environmental concern and low social altruism, two things were evident in the responses of these students: 1) they had a deep appreciation for nature and 2) they had a sense of responsibility to nature. These students were also similar to the high environmental concern and low social altruism students in their perspective of people. These students: 1) cared for people in general, but also 2. had a low opinion of people.

As expected from students in the high environmental concern categories, these students expressed strong environmental appreciation and the belief that it was human responsibility to take care of the earth. "All of us live [on earth] and we're not suppose to harm it only because of our needs and wants. It's everybody's earth," said Adriana. "I do care about nature. I like nature... I like animals and trees.... Everything's so amazing, you know, cause everything works so perfectly... you can't replace nature. That just took millions of years to make, you can't do that," said Maya. And Ricky said:

[Animals] have like an intrinsic value. That means that even if we don't use them to our advantage they are alive and they should have like a value because they are

part of nature, just as we are too. In nature everything is interconnected. When I die or something, other species will like decompose me. They will use it for energy, consume it and the cycle keeps going.... Everything comes back to us like whatever we do to the environment comes back to us somehow.

In regards to people, all 3 students had a low opinion of people in general. They believed that most people were greedy and that most people didn't care about nature. They each expressed disappointment in people's lack of response to environmental degradation and social injustice. Despite their low opinion of people they felt that people had the capacity for good and that it was important to help people in need. The students in this group had a low opinion of people, but they cared about people. Maya expressed this point of view:

Our like mentality is like kinda like a greedy thing. Its like, you know, oh we need it, we'll just take it and then not give it back.... For people, like, all over the world, you know, like people that are hungry and stuff like that, I would definitely feel like total compassion and just care, you know. But for people that are, like, in this country, mostly people that are in this country are, like, taking advantage of things and they're kind of jerks. Then I really don't care for them.

Another student, Ricky said, "Everybody has the same right to breathe and to have food, survive, have shelter, just what we have, same thing." And Adriana said, "I want to help people, like mostly students, because you know how they say that children are the future. So I want to help them—help them be successful, like maybe become a teacher, psychologist, or something like that."

Similar to the high environmental concern and low social altruism group, the students in this group expressed a strong appreciation for nature, and although they didn't have a high opinion of people in general, the well being of people mattered to them very

much. Their disappointment in people was based in society's lack of response to environmental degradation and social injustice.

High environmental concern and high social altruism.

Seven students from the group, high environmental concern and high social altruism, were interviewed. Four of the students were Environmental Science students and 3 were not. All of the students in this group had interview answers consistent with their survey answers pertaining to the environment. In regard to their social altruism scores, however, 1 student in this group, Reza, had answers that were more like the answers of the students in the mid-level social altruism category. The rest of the students expressed high concern and compassion for people, although they had mixed opinions of people in general.

Two themes in regards to environmental concern became evident among the students in this group, they had: 1) a deep appreciation of nature, and 2) a sense of responsibility for the well being of nature. In regards to social altruism the students: 1) cared for people very much, 3) were motivated to help people, but, 2) they had very mixed opinions of people.

All of the students agreed that caring for and protecting nature was very important. The students felt adamantly that change was necessary to protect and save the environment for the sake of both people and nature; there was a sense of urgency among these students. "Nature should be our top priority," said Maritza. Another student, Jennifer, said:

It's not only our planet, but also every creature that's living on this planet. And if we want it to remain here, then it's definitely our responsibility to take care of

it.... The environment is so valuable to us. We reap so much from it and it's really a big part of our lives. So if we cause harm to it, then we're causing harm to ourselves in the long run.

Antonio said:

We, ourselves, are like animals too. So then, like, if you look at it, no other animals cause harm to the environment the way we do. So, like, we have no right to do that. We have, like, no right to affect, like, the lives of other organisms or, like, plants and stuff... I just don't think it's right to like harm it and not, like, do anything about—like if you do something bad to it, like, you have to fix it. You can't just go through life like that, not worry about, like, how you affect the environment, cause it'll affect other people and animals and... I just don't think that's right.

The students in this group felt that people, including themselves should do more to protect the environment. “I do feel I care about nature, but I feel I could contribute more because—I do recycle—but I don't really contribute that much,” said Maritza. The students in this group also believed that people would do more if they were more aware of environmental issues. Diem stated:

There is some people who are educated [about environmental issues] and they don't really care either way. But I think there are some people, like me, like before when I didn't really know, but then now that I know about it I feel kinda bad every time that I do something that's bad.

The students in this group didn't see it as a human right to harm and abuse nature. They accepted that nature benefits humans and that humans need to use nature. But not that humans had a right to cause selfish harm to the planet. Nature had a right to exist in itself.

In regards to social altruism, these students all cared for people and believed in the importance of helping people in need. These students stated that it was important to treat others as best as possible. They expressed a desire to help homeless people and

people in poor countries. One student said that she would like to become a doctor and help people in poor nations.

Partly because of the way people treat each other and partly because of the way people are devastating the natural environment, the students had low opinions of people. The students felt that people were a mix of both good and bad. “I think that most people are actually kinda mean. Like people they don’t give people a chance... and I don’t think that that’s right. I think that you should give everybody a chance,” said Maritza. “I think that people are good inside. But just—but they make bad choices in life. We should care for everybody, no matter who they are,” said Rachel. Diem said:

[People] can’t help being the way they are. Well, I think everyone has their own selfishness, but like in general I think most people are just in the middle, like they sway back and forth. Some of my friends they have a ‘Cup O Noodles’ and they eat one bite and it’s not hot enough so they throw the whole thing away. And then I tell them that, you know, people in Vietnam—cause I’m Vietnamese and I’ve been there—like they don’t have—like even if it’s cold they would still eat it. And then they’re like ‘it doesn’t matter cause we’re here and we can’t, like, put it over there, like we can’t send it over there now anyways.’... I get frustrated that they’re being so dumb.

Just as the previous two groups felt let down by people’s lack of concern with social injustice these students were too. Again these students expressed high regard for human life and well-being, but great disappointment in human action or inaction.

One student, Reza, had a lower opinion of people than the rest of the group did. “You can’t really trust anybody anymore. Like everyone for themselves, ya. I’m pretty sure like everyone in the world is like greedy. Like they’d probably do anything for like a million dollars.” Reza is also unique among this group in that he feels that Americans should focus on helping people in the U.S. only. “It’s important to help homeless, but

other countries problems are not our problem. Like we should focus on our problems first and then go help others,” said Reza. Reza was not a good fit in the high social altruism category.

The discrepancy between Reza’s survey score and his interview responses is unclear. On the survey Reza chose *neutral* in response to whether or not he cared for people other than his family and friends. But, Reza valued equality, social justice, and world peace among his most important values. These are indicators of social altruism and so Reza had a high social altruism score. Perhaps it was the concept of equality, social justice, and world peace that Reza valued so highly, and he may not have placed individual needs within those concepts.

For the students in this group, nature and people were a priority. The students valued nature highly and acknowledged an urgent need for humans to protect nature. Although the students didn’t have a positive perception of people in general, they cared very much about people and about social justice.

Discussion

This study found a positive correlation between environmental concern and social altruism, supporting much of the research and theory that caring for nature and caring for people are closely related, but contradicting the stereotype that environmentalists don't care for people.

Objective 1: Is there a Significant Difference between Environmental Science Students' and Non-Environmental Science Students' Levels of Environmental Concern?

A higher percentage of Environmental Science students responded positively in favor of the environment, even though the difference was not always significant for individual statements. The responses were significantly different when the statements involved personal action or sacrifice.

The statement that had the largest difference in responses between Environmental Science and Non-Environmental Science students was, *In the future I plan to help protect the natural environment*, only 23.8% of the Non-Environmental Science students agreed, while 74.0% of the Environmental Science students agreed (see Figure 7). This may indicate that knowledge of environmental issues coincides with increased willingness to act in a more environmentally conscious manner. Not only were the Environmental Science students willing to say that they cared about nature, they were also more willing to do something about it. These findings support previous research findings in which positive environmental attitudes and behaviors were correlated with exposure to environmental education and increased knowledge of environmental problems (Coyle,

2005; Volk & Cheak, 2003; Vaske & Korbrin 2001; Culen and Volk 2000; Shean and Shei, 1995).

In regards to overall environmental concern scores, taking into consideration all of the statement responses, the majority of both Environmental Science and Non-Environmental Science students scored into the mid-level environmental concern category; exposure to environmental education seems to offer great potential for increasing the number of students in the high environmental concern category. The Environmental Science students were more likely than the Non-Environmental Science students to be in the high environmental concern category, and the Non-Environmental Science students were more likely to fall into the low environmental concern category (see Table 3).

Because a pre-test was not administered, differences between Environmental Science and Non-Environmental Science students cannot be fully attributed to the Environmental Science class. But still, this finding supports much of the previous research on environmental education. In several studies students who were exposed to environmental education in comparison to students not exposed to environmental education had more positive environmental attitudes (Coyle, 2005; Volk & Cheak, 2003; Culen & Volk, 2000; Zelenzny, 1999).

High school was not significantly correlated to students' levels of environmental concern (see Table 3 and Table 4). The high schools were in very different areas of Santa Clara County—indicating that there was not much of a difference in the Santa Clara County in terms of environmental concern. Although a difference didn't occur between

schools overall, the data suggests (but is limited by the size of the sample) that among the Environmental Science students there exists differences between the students from different high schools and their levels of environmental concern. However, introducing the third variable, class type, limits the cell count considerably and so these findings are inconclusive.

The students' motivation for taking the class is one potential reason for the differences among the students from different schools (see Table 7). The students from the schools who had an interest in the class to begin with had higher environmental concern scores. The students who were motivated to take the class to boost their GPA had lower scores. Also, the teachers at both High School C and High School A had a reputation for being great Environmental Science teachers, according to the students that were interviewed. These findings suggest that the students' motivations for taking the class and the teachers' style and rapport with the students influences the student's perceptions of the class.

According to the students' responses, the teacher and his or her approach made a difference in the students' perspective of environmental studies. Again, several of the students from High School A emphasized their high regard for their teacher. At High School B, many of the students emphasized their discontent with their perceived pessimism in the class and textbook content. At High School C, many of the students expressed a strong sense of value for the class and for their teacher. For example one student, Gayle, said that she learned how she could help protect nature. She felt so strongly about the importance of the course that she said that sometimes it was the only

class she did her homework for, and that she was willing to voluntarily arrive at school early for that particular class. The class provided them with a very unique opportunity to learn important and interesting things.

Overall, the Environmental Science students had very positive comments about the Environmental Science classes. Repeatedly students from each of the three schools affirmed that they became aware of environmental degradation through their Environmental Science class. Through their Environmental Science class they also became aware of what they could do to lessen their impact on the environment, and they learned the importance of environmental protection. The students stated repeatedly that their class was interesting, educational, relevant, and important.

Because the Environmental Science class had made a significant impact on the students' knowledge and attitudes, many of the students believed that if more people received the information they had, that significant environmental progress could be made. Some of the students said that the class should be mandatory. Even the students who didn't like the Environmental Science class or who scored into the low environmental concern category said that they had learned important information and that their attitudes had changed at least a little. The acknowledged change in attitudes ranges, nevertheless an acknowledgment in a change of attitude is remarkable. Past research concerning students' perspectives on learning about environmental issues, supports these findings. Most students believe that learning about the state of the environment is relevant and important (Berlin, 2003; AIR, 2005; Greenway, 1995).

Environmental Education research inclusive of students of color is limited. A limited number of students have an opportunity to take Environmental Science classes. This is an even greater limitation for students of color, because of there lack of representation in the honors classes. Latino students in this study were underrepresented in the Environmental Science classes based on each of the school's ethnic makeup.

Because students in the Environmental Science classes had environmental concern scores that were significantly higher and ethnic representation in the Environmental Science classes was not representative of the general school population, it could be expected that the ethnic groups over-represented in the Environmental Science classes would then have higher environmental concern scores. This was not the case. Ethnicity did not make a statistically significant difference in regards to environmental concern.

Furthermore, the Latino students seemed very connected to nature based on their interview responses. Nature was an intrinsic part of daily life. Nature was life and everything around. Nature for the Latino students was not limited to a far off forest or a camping trip; nature included the food they ate and the trees in their backyards.

There is great potential in promoting environmental stewardship among the students that have this type of connection to nature and yet Latinos were underrepresented in the Environmental Science classes. Nature was inherently important to them, it makes sense that a greater understanding of environmental problems would encourage students that have a connection to nature to work for a better environment. Given the ethnic imbalances in Environmental Science classes and the potential of

Environmental Science classes to influence positive environmental attitudes the involvement of more diverse groups of people is important; the environment is important and involves all people (Coyle, 2005).

Objective 2: Is there a Significant Difference between Environmental Science Students' and Non-Environmental Science Students' Levels of Social Altruism?

Environmental Science and Non-Environmental Science students didn't have significantly different social altruism scores (see Table 12 and 13). Considering that 82.6% of all the students responded that they cared for nature and that only 16.3% of the students believed that others cared for nature, indicates that overall the students didn't have much faith in people (See Figure 2 and Figure 9). It is likely that environmental degradation and neglect led these students to believe that people do not care about nature.

The Environmental Science students were significantly more likely to believe that others did not care about nature, indicating that the more the students knew about the environmental predicament, the more they were likely to believe that humans did not care about nature. The Environmental Science students were also more likely to agree with the statement, *Humans are abusing the natural environment*. This, again, provides support that the more students know about the state of the environment, the more they believe that people are not being environmentally responsible (see Figure 3).

A lower percentage of students stated that they cared for people than those that stated that they cared for nature (See Figure 2 and Figure 10). But still a majority, of both Environmental Science and Non-Environmental Science students stated that they cared for people (See Figure 10). The Environmental Science students, despite their

beliefs that humans were abusing nature and that humans didn't care for nature, still cared for people as much or perhaps more than the average person. This is an important finding because it indicates that environmentalism does not coincide with lack of concern for people—which is a common held belief and criticism of environmentalists.

Learning to care for others may help us care for people better and also for the environment because people depend on a healthy environment. A lack of consideration for people may hinder progress for a more just society and a healthy environment. It is not likely that the natural environment will be protected solely for the sake of preserving nature by persons who don't care very much for people. And if people don't care about nature, it is not likely that they will care enough about people to protect the environment for people.

Protecting nature is related to caring for people in that a degraded environment inevitably leads to degraded quality of life for people in that environment. The connection between caring for nature and caring for people may not always be clear. Often, the concept of social well-being is not linked to environmental well-being. But, the majority, 69.6%, of the students believed that caring for nature was related to caring for people (see Figure 12). Students explained in their interviews why they believed this connection was true: they viewed people as part of nature, they viewed people as dependent on nature, or they believed that caring for nature involved a person who cared about things in general. Similarly, a national survey found that the majority of Americans believe that environmental education influences respect for both people and

the environment (Coyle, 2005). Only 2 of the students interviewed did not believe a connection existed.

Objective 3: Is there a Relationship between Environmental Concern and Social Altruism?

Chi-square tests did not show a significant correlation between environmental concern scores and motivational value types, but they did show a significant correlation between environmental concern scores and social altruism scores. Furthermore, it cannot be said that a significant relationship doesn't exist between environmental concern and motivational value types because the sample size was too small for this correlation analysis; there were 30 potential combinations (10 motivational value types x 3 environmental concern categories) and only 92 survey participants (see Table 14 and Table 15).

It is important to note that among the students who had the motivational value type, universalism, none scored into the low environmental concern category and most scored in the high environmental concern category (see Table 14). No other group had a majority fall within the high environmental concern category. This relationship suggests that a significant correlation does exist between high environmental concern and the motivational value type, universalism, as previous research has shown (Shean & Shei, 1995; Stern et al., 1995; Schultz & Zelezny, 1998; Schultz & Zelezny, 1999; Clump, 2002).

Again, the cross-tabulation of social altruism scores and environmental concern scores resulted in a highly statistically significant relationship between environmental

concern and social altruism (see Table 16 and Table 17). This was a more appropriate analysis because of the sample size. Of the 18 students that scored into the low environmental concern category, none scored into the high social altruism category (see Table 16). Consequently, there were no students in the low environmental concern and high social altruism group. A highly caring person is not one to disregard living things just because they are not human; it is just as unlikely for a person that has little regard for nonhuman living things to have high regard for humans. Similarly interesting, is that of the 19 students that scored into the high environmental concern category, only 3 of them scored into the low social altruism category, and the majority of the students that scored into the high environmental concern category also scored into the high social altruism category (see Table 16). So, the group high environmental concern and low social altruism was the second smallest.

The mid-level categories for both environmental concern and social altruism have the greatest number of students, and so the group with the most students is the mid-level environmental concern and mid-level social altruism group. There is great potential for these students to sway in the direction of high environmental concern with more environmental education.

The interviews made it clear that the students were not indifferent to environmental degradation or to human suffering regardless of their environmental concern or social altruism scores. Rather what was notably different between students in the different categories and groups was their level of knowledge of social and

environmental issues, their appreciation of nature, their sense of responsibility to nature and to humanity, and their motivation to take action (See Table 18).

The attitudes of the students in these groups seemed to progress in a logical manner beginning with the low environmental concern and low social altruism group to the high environmental concern and high social altruism group (see Table 18). The groups, beginning with the low environmental concern and low social altruism group, progressed from having a lack of environmental knowledge, lack of appreciation for nature, and a lack of hope for a more environmentally and socially conscious society to caring for people and/or nature, but lacking motivation to work for change.

The groups further progressed to students that cared for both nature and people, but lacked motivation to work to improve either social or environmental conditions. Finally ending with the group that seems the ideal, high environmental concern and high social altruism, in which the students expressed a deep appreciation and sense of responsibility for the natural environment as well as a sincere concern for social justice.

Low environmental concern and low social altruism group.

Quality environmental education programs that incorporate solutions to both social and environmental problems seem particularly important for students in this group, because these students either had very little hope, knowledge, or appreciation. These students cared to a certain extent about both people and nature; yet, the students didn't express any motivation to work to address these problems. The lack of community responsibility for the environment and for social justice allows the current social and environmental state to persist. This group was the least ideal group.

Low environmental concern and mid-level social altruism group.

As with the first group, the students' attitudes didn't reflect any interest in purposely harming nature. Still, the students in this group showed both lack of knowledge and lack of appreciation of nature. Lack of knowledge and a lack of connection to the environment was a determiner for inaction. In regards to people, with the increase in social altruism score, the students in this group seemed more inclined to help people in need than the students in the first group. They weren't likely to dedicate their lives to social justice, but they cared about people.

Low environmental concern and high social altruism.

No student that scored into the low environmental concern category also scored into the high social altruism category. Thereby supporting the existence of a relationship between caring for nature and caring for people.

Mid-level environmental concern and low social altruism group.

The main difference between these students and the students in the prior groups was either that they had more knowledge of environmental problems or that they did not see environmental problems as overwhelming. A lack of motivation to protect the natural environment and a lack of appreciation for nature were still apparent among these students.

As with the other students in the low social altruism category, the students expressed the belief that nothing they could do would change social conditions or that they didn't have a responsibility to try to change social conditions. Without a vision

perhaps a better world it isn't possible. The lack of responsibility to the global community is a key attribute of the students in the low social altruism categories.

Mid-level environmental concern and mid-level social altruism.

There is variation within this group in regards to the students' positions on the environment and people—which seems logical for a mid-level category. This group had the highest number of students in it. Again, the students' cared for both nature and people, but action was not a result of their caring. Being the largest group, it seems particularly important to reach these students. These students needed guidance and motivation.

Mid-level environmental concern and high social altruism.

Although these students fit the mid-level environmental concern category, there were students in this group with responses very similar to the responses of students in the high environmental concern category, supporting once again the finding that environmental concern is positively correlated with social altruism. Still these students needed motivation to advocate for the environment, which would likely come with increased environmental awareness. These students did have motivation to care for people. Deciphering what gave these students that motivation is an important step in changing the minds and attitudes of those that feel hopeless.

High environmental concern and low social altruism

These students seemed more likely to act to protect the environment than they would be to accept complacency than any of the previous groups. In regards to their social altruism scores, these students were significantly different from the other students

with low social altruism scores, from their concern for oppressed people, not from their lack of concern, came an overwhelming sense of disappointment in people, resulting in a low social altruism score. Acknowledging human made problems and the lack of progress can be an overwhelming experience—it isn't illogical that they would be disappointed in people.

High environmental concern and mid-level social altruism.

As with the previous group, these students' low opinion of people was based on their compassion for people and their appreciation of nature. People's lack of response to environmental degradation and social injustice was a clear disappointment to them. Yet, these students still wanted what was best for people and they cared for people very much. With the bleak outlook on the environment the students are presented with, it is important to provide these students with a sense of hope.

High environmental concern and high social altruism.

The protection of the environment and the well being of people were priorities for these students. Partly because of the way people treat each other and partly because of the way people are devastating the natural environment, the students had very mixed opinions of people. Still, this is a group ready to actively contribute in their schools and communities. They seem only to need a push and a source where they can become more active. Despite the less than ideal social and environmental conditions, these students still believed in a better way of living.

Although this last group seems the most ideal, it is important to note that with increased environmental concern many of the students seemed more adamant about their

disappointment in humanity. This is a very difficult situation to be in and so although the students had not given up hope, a sense of hopelessness lingered. It seems critical to involve all students in environmental education programs that actively seek and implement solutions collectively with the community.

Conclusions and Recommendations

Through this study a close and complicated relationship between environmental concern and social altruism was examined and established. There was a significant correlation between students' levels of environmental concern and social altruism. Students that cared very much about nature were also likely to care very much about people. Protecting the environment serves to benefit nature and also serves to benefit people throughout the world. Without a healthy environment the quality of life for nature and people decreases and so it is critically important that people, collectively, begin to take action to create a more sustainable way of life.

Students' interview and survey responses showed that the Environmental Science students had significantly higher levels of environmental concern. Various students stated that the Environmental Science class had increased their awareness of environmental issues. "I know everybody in this class whether they came into it being passionate about the environment or not, everybody is leaving this class... passionate about it. And if we spread that out more, it would change so much, you know, just piece by piece. It would really help a lot," said Susan. She continued, "[When] I took this class, I knew that there was a problem, but I didn't know how serious it was." The Environmental Science students learned a great deal about environmental problems and the future consequences that are likely.

The class was only offered as an honors class at the three schools, and most schools in the Santa Clara County did not offer Environmental Science. If the class was mandatory for every high school student the impact would be powerful. The class and

the knowledge that it extended was limited to students that qualified for honors courses, leaving out most students of color, most 'average' students, and all academically underachieving students.

Environmental problems affect people and nature all over the world. Problems for people will likely continue and may increase in the future. It is a great disservice to our communities not to teach all students about the environmental problems we face. Environmental Science was of great interest, importance, and relevance to the students. Real life issues may be exactly what students need to be motivated.

For all people—those with very specific knowledge of social and environmental issues and those with just a general knowledge—hopelessness was a significant issue. The students felt that not enough was being done. Many of the students didn't feel that they could do anything about social or environmental problems. Social injustice and environmental degradation will persist if the widespread belief that there is nothing one person can do to make a difference persists.

Because hopelessness was so pervasive, the need for environmental education that incorporates solutions is critical. Knowledge of terrible predictions for the future because of the mismanagement of the environment, accompanied with the belief that there is nothing the average person can do, may be overwhelming for students. Supplementing Environmental Science classes with action-oriented solutions is important in combating hopelessness. Activities such as writing to government representatives, beach and river clean ups, invasive plant removal projects, and tree planting projects are examples of projects that can help to make a difference. These activities can also help build a sense of

connectedness to others working for the same cause. Connecting the students to each other and to local, national, and international groups doing environmental and social justice work can help to establish a life long commitment to social and environmental work. This will provide more hope for the future.

References

- American Institutes for Research. (2005, January). Effects of outdoor education programs for children in California. Palo Alto, CA.
- Bendagi, B.T. (n.d.). The great spirit is our father, but the earth is our mother. In McLuhan, T.C. (Ed.). (1972). *Touch the earth: A self-portrait of Indian existence*. New York: Pocket Books.
- Berlin, M. (2003, December). Life study: how nature nurtures students at an inner-city high school. *Sierra Magazine*, 88, 36-45.
- Bullard, R.D. (Ed.). (1994). *Unequal protection, environmental justice and communities of color*. San Francisco: Sierra Club Books.
- Bullard, R., Johnson, G.S., & Wright, B.H. (1997). Confronting environmental injustice: it's the right thing to do. *Race, Gender & Class*, 5(1), 63-72.
- California Department of Education. (2005). 2004-2005 school year demographic data. Retrieved December 29, 2005, from <http://dq.cde.ca.gov/dataquest/>
- Clump, M. (2002). Differences in Schwartz's value survey between high and low scorers on the ECOSCALE. *Psychological Reports*, 90, 1174-1178.
- Conn, S.A. (1995). When the Earth hurts, who responds? In T. Roszak, M.E. Gomes, & A.D. Kanner (Eds.), *Ecopsychology, restoring the earth healing the mind* (pp. 156-171). Sierra Club Books: San Francisco.
- Cooper, D.E. (2001). Arne Naess. In J.A. Palmer, (Ed.), *Fifty key thinkers on the environment* (pp. 211-215). New York: Routledge.
- Corral-Verdugo, V., Corral-Verdugo, B.A., & Armendariz, L.I. (2000). The "new environmental paradigm" in a Mexican community. *The Journal of Environmental Education*, 31(3), 25-31.
- Coyle, K. (2005). *Environmental literacy in America, what ten years of NEETF/Roper research and related studies say about environmental literacy in the U.S.* Washington D.C.: The National Environmental Education & Training Foundation.
- Culen, G.R., & Volk, T.L. (2000). Effects of an extended case study on environmental behavior associated variables in seventh and eighth-grade students. *The Journal of Environmental Education*, 31(2), 9-15.

- Dunlap, R. E., & Van Liere, K. D. (1978). A proposed measuring instrument and preliminary results: The "New Environmental Paradigm." *The Journal of Environmental Education*, 9(4), 10-19.
- Dunlap, R.E., Van Liere, K.D., Mertig, A.G., & Jones, R.M. (2000). Measuring endorsement of the New Ecological Paradigm: A revised NEP scale. *Journal of Social Issues*, 56(3), 425. Retrieved on September 26, 2004, from the Social Sciences database.
- Eagles, P.F.J., & Demare, R. (1999). Factors influencing children's environmental attitudes. *The Journal of Environmental Education*, 30(4), 33-37.
- Feral, C.H. (1999). Connectedness and development: A theory. Is Ecopsychology the answer to emotional well being? New Orleans, LA: Report presented at the Annual convention of the National Association of School Psychologists. (ERIC Document Reproduction Service No. ED438489)
- Food and Agricultural Organization of the United Nations (FAO). (2004). The State of Food Insecurity in the World 2004. Retrieved on February 11, 2005 from http://www.fao.org/sof/sofi/index_en.htm. Rome, Italy.
- Gambro, J.S., & Switzky, H.N. (1996). A national survey of high school students' environmental knowledge. *The Journal of Environmental Education*, 27(3), 28-33.
- Gottlieb, R. (2001). *Environmentalism unbound: exploring new pathways of change*. Cambridge, MA: the MIT Press.
- Gottlieb, R. (1993). *Forcing the spring*. Washington, D.C.: Island Press.
- Gomes, M. (1998). Ecopsychology and social transformation. *Revision*, 20(4), 7-32.
- Greenway, R. (1995). The wilderness effect and ecopsychology. In T. Roszak, M.E. Gomes, & A.D. Kanner (Eds.), *Ecopsychology, restoring the earth healing the mind* (pp. 122-135). Sierra Club Books: San Francisco.
- Haluza-Delay, R. (2001). Nothing here to care about: Participant constructions of nature following a 12-day wilderness program. *The Journal of Environmental Education*, 32(4), 43-48.
- Houston, D.M., & Ryckman, R.M. (2003). Value priorities in American and British female and male university students. *The Journal of Social Psychology*, 143(1), 127-138.

- Hunter, L.M., & Brehm, J. (2003). Qualitative insight into public knowledge of, and concern with, biodiversity. *Human Ecology*, 31(2), 309-320.
- Intergovernmental Panel on Climate Change (IPCC). (2001) Climate Change 2001: Synthesis Report. Retrieved on February 11, 2005, from <http://www.ipcc.ch/> updated February 7, 2005.
- Kowalewski, D. (2002). Teaching deep ecology: A student assessment. *The Journal of Environmental Education*, 33(4), 20-27.
- Lalonde, R., & Jackson, E.L. (2002). The new environmental paradigm scale: Has it outlived its usefulness? *The Journal of Environmental Education*, 33(4), 28-36.
- Mani, T. (n.d.). We were lawless people. In McLuhan, T.C. (Ed.). (1972). *Touch the earth: A self-portrait of Indian existence*. New York: Pocket Books.
- McLaughlin, L. (2004, May10). Flower power: for your brain and blood pressure, get gardening! *Time*, 95.
- Miller, T.G. (2002). *Living in the environment* (twelfth ed.). Stamford, CT: Brooks/Cole.
- Mortari, L. (1997). Children's ideas of nature: The social construction of a "nature set". In P.J. Thompson (Ed.), *Environmental education for the 21 century: International and interdisciplinary perspectives* (pp. 245-258). NY: Peter Lang Publishing Inc.
- Muir, J. (1988). *Northwest passages from the pen of John Muir*. Palo Alto, CA: Tioga Publishing Company.
- The National Environmental Education Training Foundation. (2001). *Roper Starch National Report Card*. Retrieved on March 2, 2004, from www.neetf.org
- Nordlund, A.M. (2002). Value structure behind pro-environmental behavior. *Environment and Behavior*, 34 (6), 740-756.
- Orr, D.W. (1990). Is conservation education an oxymoron? *Conservation Biology*, 4(2), 119-121.
- Orr, D.W. (1993). Educating a constituency for the long haul. *Conservation Biology*, 7(4), 752-754.
- Orefice, P. (2002). The creation of knowledge through environmental education. In J.P. Hauteoeur (Ed.), *Ecological education in everyday life: ALPHA 2000* (pp. 83-93). Toronto: University of Toronto Press.

- Pooley, J.A., & O'Conner, M. (2000). Environmental education and attitudes: emotions and beliefs are what is needed. *Environment and Behavior*, 32, 711-719.
- Schultz, W.P., Unipan, J.B., & Gamba R.J. (2000). Acculturation and ecological worldview among Latino Americans. *The Journal of Environmental Education*, 31(2), 22-27.
- Schultz, W. P., & Zelenzy, L. (1998). Values and pro-environmental behavior: A five country survey. *Journal of Cross Cultural Psychology*, 29 (4), 540-559.
- Schultz, W. P., & Zelenzy, L. (1999). Values as predictors of environmental attitudes: Evidence for consistency across 14 countries. *Journal of Environmental Psychology*, 19, 255-265.
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25, 1-62.
- Schwartz, S.H. (1994). Are there universal aspects in the structure and contents of human values? *Journal of Social Issues*, 50 (4), 19-45.
- Schwartz, S.H., & Boehnke, K. (2004). Evaluating the structure of human values with confirmatory factor analysis. *Journal of Research in Personality*, 38, 230-255. Retrieved on September 26, 2004, from www.sciencedirect.com.
- Schweitzer, A. (1923). Reverence for life. In Pojman, L.P. (Ed.), *Environmental ethics, reading in theory and application* (pp.95-100). Belmont, CA: Wadsworth.
- Shean, G.D., & Shei, T. (1995). The values of student environmentalists. *Journal of Psychology*, 129(5), 559-565.
- Smithson, I. (1997). Native Americans and the desire for environmental harmony: Challenging a stereotype. In P.J. Thompson (Ed.), *Environmental education for the 21st Century: International and interdisciplinary perspectives* (pp.163-175). New York: Peter Lang Publishing Inc.
- Standing Bear, C.L. (n.d.). The hairy man from the east. In McLuhan, T.C. (Ed.). (1972). *Touch the earth: A self-portrait of Indian existence*. New York: Pocket Books.
- Stern, P.C., Dietz, T., Kalof, L., & Guagnano, G.A. (1995). Values, beliefs, and pro-environmental action: Attitude formation toward emergent attitude objects. *Journal of Applied Social Psychology*, 25, 1611-1636.

- Palmer, J.A. (Ed.). (2001). *Fifty key thinkers on the environment*. New York: Routledge.
- Population Reference Bureau. (2004). 2004 World Population Data Sheet of the Population Reference Bureau. Retrieved on February 12, 2005, from <http://www.prb.org/> updated February 8, 2005.
- Ruskey, A., Wilke, R., & Beasley, T. (2001). A survey of the status of state-level environmental education in the United States-1998 update. *The Journal of Environmental Education*, 32(3), 4-14.
- Vaske, J.J., & Kobrin K.C. (2001). Place attachment and environmentally responsible behavior. *The Journal of Environmental Education*, 32(4), 16-21.
- Volk, T.L., & Cheak, M.J. (2003). The effects of an environmental education program on students, parents, and community. *The Journal of Environmental Education*. 34(4), 12-25.
- United States Census Bureau. (n.d.). 2000 census data. Retrieved on December 22, 2004, from <http://census.gov>
- Zelenzny, L.C. (1999). Educational interventions that improve environmental behaviors: A meta-analysis. *The Journal of Environmental Education*, 31(1), 5-14.
- Zimmermann, L.K. (1996). Knowledge, affect, and the environment: 15 years of research (1979-1993). *The Journal of Environmental Education*, 27(3), 41-44.

APPENDIX A
Agreement to Participate

Responsible Investigator: Monica Nañez

Title of Study: Caring for Nature and Caring for People

Dear Student,

Your science class has been asked to participate in a graduate research study investigating the relationship between caring for nature and caring for people. This study is being conducted by Monica Nañez, under the guidance of her Master's thesis committee at San Jose State University.

You will be asked to complete a questionnaire that measures environmental concern and social values, followed up by an interview based on the survey. The questionnaire will be administered in class and will take about twenty minutes. The interview will take place either during a lunch period or after school, depending on your preference. The interview will take about twenty minutes. The research will take place during the spring 2005 semester.

There are no anticipated risks. However, the opportunity to be a part of a graduate research project is a beneficial learning opportunity that will contribute to your understanding of college level research. Furthermore, you will have the option to participate in the data analysis once the data is collected (during a lunch period).

Although results of this study may be published, no information that could identify you will be included. There is no compensation for participation in the study.

Initial _____

If you have any questions about this research please contact Monica Nañez at (408) 000-0000. If you have any complaints about the research you may contact Dr. Lynne Trulio, Department Chair for the Environmental Studies Department, at (408) 000-0000. For questions about research subjects' rights, or research-related injury contact Pamela Stacks, Ph.D., Interim Associate Vice President, Graduate Studies and Research, at (408) 000-000.

No service of any kind, to which you are otherwise entitled, will be lost or jeopardized if you choose not to participate in the study. There are no penalties of any kind if you choose not to participate in the study. Your choice to participate is completely voluntary and you are free to withdraw at any time without any consequences to yourself in terms of your relations with the science class, the high school, or San Jose State University.

The signature of a subject on this document indicates agreement to participate in the study. The signature of a researcher on this document indicates agreement to include the above named subject in the research and attestation that the subject's parent or guardian has been fully informed of the subject's rights.

Signature

Date

Investigator's Signature

Date

APPENDIX B
Agreement to Participate

Responsible Investigator: Monica Nañez

Title of Study: Caring for Nature and Caring for People

Dear Parent,

Your high school student's class science has been asked to participate in a graduate research study investigating the relationship between caring for nature and caring for people. This study is being conducted by Monica Nañez, under the guidance of her Master's thesis committee at San Jose State University.

Your son or daughter will be asked to complete a questionnaire that measures environmental concern and social values, followed up by an interview based on the survey. The questionnaire will be administered in class and will take about twenty minutes to complete. The interview will take place either during a lunch period or after school, depending on the student's preference. The interviews will take about twenty minutes. The research will take place during spring semester 2005.

There are no anticipated risks to your child. However, the opportunity to be a part of a graduate research project is a beneficial learning opportunity that will contribute to their understanding of college level research. Furthermore, each student will have the option to participate in the data analysis once the data is collected (during a lunch period).

Although results of this study may be published, no information that could identify your child, your family, or you will be included. There is no compensation for participation in the study.

Initial _____

If you have any questions about this research please contact Monica Nañez at (408) 000-0000. If you have any complaints about the research you may contact Dr. Lynne Trulio, Department Chair for the Environmental Studies Department, at (408) 000-0000. For questions about research subjects' rights contact Pamela Stacks, Ph.D., Interim Associate Vice President, Graduate Studies and Research, at (408) 000-0000.

No service of any kind, to which you and/or your child are otherwise entitled, will be lost or jeopardized if you choose not to allow your child to participate in the study. There are no penalties of any kind if you choose not to allow your son or daughter to participate in the study. Your choice to allow your student to participate is completely voluntary and you are free to withdraw at any time without any consequences to yourself or your student in terms of your relations with the science class, the high school, or San Jose State University.

Initial _____

The signature of a parent or legal guardian on this letter indicates that the named student has been given permission to participate in the study, that the child is freely willing to participate, and that the child is permitted to decline to participate, in all or part of the study, at any point.

The signature of a researcher on this document indicates agreement to include the above named subject in the research and attestation that the subject's parent or guardian has been fully informed of the subject's rights.

Name of Child or Ward

Parent's (or Guardian's) Signature

Date

Relationship to Child or Ward

Full Mailing Address

Investigator's Signature

Date

APPENDIX C

Spring 2005 Student Survey

1. Number _____

2. Gender (please circle one): female male

3. Age _____

4. Ethnicity (please circle)

- African American/black
- Anglo/white/Euro-American
- Asian-South/East Asian: Chinese/Japanese/Korean/Vietnamese
- Asian-Filipino
- Latino/Chicano/Mexican American/other Latino
- Middle Eastern
- Native American
- Other: _____

5. Grade in school (please circle one): Freshman Sophomore Junior Senior

6. Why are you taking this class?

7. If you are not taking Environmental Science, do you plan on taking it?

Why? _____

THERE ARE NO RIGHT OR WRONG ANSWERS

APPENDIX D

Schwartz Value Survey

(Schwartz, 1992), copied with permission. (This survey has been modified for this study as explained in the methods chapter.)

Please rate each value “AS A GUIDING PRINCIPLE IN MY LIFE” using the following scale:

- **of supreme importance = 7**
 - **very important = 6**
 - **important = 3**
 - **not important = 0,**
 - **opposed to my values = -1**
1. ___EQUALITY (equal opportunity for all)
 2. ___SOCIAL POWER (control over others, domination)
 3. ___PLEASURE (gratification of desires)
 4. ___FREEDOM (freedom of action and thought)
 5. ___SENSE OF BELONGING (feeling that others care about me)
 6. ___SOCIAL ORDER (stability of society)
 7. ___AN EXCITING LIFE (stimulating experiences)
 8. ___POLITENESS (courtesy, good manners)
 9. ___WEALTH (material possessions, money)
 10. ___NATIONAL SECURITY (protection of my nation from enemies)
 11. ___SELF-RESPECT (belief in one's own worth)

12. ___ RECIPROCATION OF FAVORS (avoiding being in debt)
13. ___ CREATIVITY (uniqueness, imagination)
14. ___ A WORLD AT PEACE (free of war and conflict)
15. ___ RESPECT FOR TRADITION (preservation of time-honored customs)
16. ___ MATURE LOVE (deep emotional and spiritual intimacy)
17. ___ SELF-DISCIPLINE (self-restraint, resistance to temptation)
18. ___ FAMILY SECURITY (safety for loved ones)
19. ___ SOCIAL RECOGNITION (respect, approval by others)
20. ___ A VARIED LIFE (a life filled with challenge, new things, and change)
21. ___ WISDOM (a mature understanding of life)
22. ___ AUTHORITY (the right to lead or command)
23. ___ TRUE FRIENDSHIP (close, supportive friends)
24. ___ A WORLD OF BEAUTY (beauty of nature and the arts)
25. ___ SOCIAL JUSTICE (correcting injustice, care for the weak)
26. ___ INDEPENDENT (self-reliant, self-sufficient)
27. ___ MODERATE (avoiding extremes of feelings or actions)
28. ___ LOYAL (faithful to my friends, group)
29. ___ AMBITIOUS (hardworking, aspiring)
30. ___ BROAD-MINDED (tolerant of different ideas and beliefs)
31. ___ HUMBLE (modest, self-effacing)
32. ___ DARING (seeking adventure, risk)
33. ___ INFLUENTIAL (having an impact on people and events)

- 34. ___ HONORING OF PARENTS AND ELDERS (showing respect)
- 35. ___ CHOOSING OWN GOALS (selecting own purposes)
- 36. ___ HEALTHY (not being sick physically or mentally)
- 37. ___ CAPABLE (competent, effective, efficient)
- 38. ___ ACCEPTING MY PORTION IN LIFE (submitting to life's circumstances)
- 39. ___ HONEST (genuine, sincere)
- 40. ___ PRESERVING MY PUBLIC IMAGE (protecting my "face")
- 41. ___ OBEDIENT (dutiful, meeting obligations)
- 42. ___ INTELLIGENT (logical, thinking)
- 43. ___ HELPFUL (working for the welfare of others)
- 44. ___ ENJOYING LIFE (enjoying food, enjoying vacations, etc.)
- 45. ___ DEVOUT (holding to religious faith and belief)
- 46. ___ RESPONSIBLE (dependable, reliable)
- 47. ___ CURIOUS (interested in everything, exploring)
- 48. ___ FORGIVING (willing to pardon others)
- 49. ___ SUCCESSFUL (achieving goals)
- 50. ___ CLEAN (neat, tidy)

APPENDIX E

Environmental Concern Questionnaire

*1. Humans have the responsibility to change aspects of our lifestyle that cause damage to the natural environment, even if it means giving up certain luxuries such as driving SUVs or sports cars.

Strongly Agree(5) Agree(4) Neutral(3) Disagree(2) Strongly Disagree(1)

*2. Humans don't need to worry about species extinction.

Strongly Agree(1) Agree(2) Neutral(3) Disagree(4) Strongly Disagree(5)

3. I am part of nature.

Strongly Agree Agree Neutral Disagree Strongly Disagree

*4. Humans have the right to cause harm to the natural environment.

Strongly Agree(1) Agree(2) Neutral(3) Disagree(4) Strongly Disagree(5)

5. Humans were created to rule over the rest of nature.

Strongly Agree Agree Neutral Disagree Strongly Disagree

*6. Plants and animals exist mainly for the use of humans.

Strongly Agree(1) Agree(2) Neutral(3) Disagree(4) Strongly Disagree(5)

*7. Humans should try to live in harmony with nature.

Strongly Agree(5) Agree(4) Neutral(3) Disagree(2) Strongly Disagree(1)

*8. Humans don't need to worry about the natural environment much because we can use technology to fulfill our needs.

Strongly Agree(1) Agree(2) Neutral(3) Disagree(4) Strongly Disagree(5)

9. The well being of humans depends on the well being of nature.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
----------------	-------	---------	----------	-------------------

10. Humans are abusing the natural environment.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
----------------	-------	---------	----------	-------------------

11. I consider myself an environmentalist.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
----------------	-------	---------	----------	-------------------

*12. Humans don't need to worry about protecting the Earth.

Strongly Agree(1)	Agree(2)	Neutral(3)	Disagree(4)	Strongly Disagree(5)
-------------------	----------	------------	-------------	----------------------

*13. Humans should protect the natural environment even if it costs a lot of money.

Strongly Agree(5)	Agree(4)	Neutral(3)	Disagree(2)	Strongly Disagree(1)
-------------------	----------	------------	-------------	----------------------

14. I help protect the Earth.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
----------------	-------	---------	----------	-------------------

*15. In the future, I plan to help protect the natural environment.

Strongly Agree(5)	Agree(4)	Neutral(3)	Disagree(2)	Strongly Disagree(1)
-------------------	----------	------------	-------------	----------------------

*16. If people have quick, easy, and safe access to public transportation they should they ride public transportation to help protect the natural environment.

Strongly Agree(5)	Agree(4)	Neutral(3)	Disagree(2)	Strongly Disagree(1)
-------------------	----------	------------	-------------	----------------------

*17. People should recycle paper, aluminum cans, glass, or other recyclable products to help protect the natural environment.

Strongly Agree(5)	Agree(4)	Neutral(3)	Disagree(2)	Strongly Disagree(1)
-------------------	----------	------------	-------------	----------------------

*18. I care about nature.

Strongly Agree(5)	Agree(4)	Neutral(3)	Disagree(2)	Strongly Disagree(1)
-------------------	----------	------------	-------------	----------------------

19. Most people care about the natural environment.

Strongly Agree Agree Neutral Disagree Strongly Disagree

*20. I care about the well being of animals, the oceans, and the forests.

Strongly Agree(5) Agree(4) Neutral(3) Disagree(2) Strongly Disagree(1)

*21. It is important to take care of the Earth.

Strongly Agree(5) Agree(4) Neutral(3) Disagree(2) Strongly Disagree(1)

22. Caring for nature is related to caring for humans.

Strongly Agree Agree Neutral Disagree Strongly Disagree

23. I think that the future of the natural environment looks positive.

Strongly Agree Agree Neutral Disagree Strongly Disagree

*24. Humans are superior to nature.

Strongly Agree(1) Agree(2) Neutral(3) Disagree(4) Strongly Disagree(5)

25. I care about people, even if they are not family or friends.

Strongly Agree Agree Neutral Disagree Strongly Disagree

APPENDIX F

Interview Questions

Nature related questions

1. Describe the natural environment? What is nature?
2. Are you a part of nature? Why or why not?
3. How are humans treating the natural environment?
4. Would you say that humans are abusing nature?
5. Do humans have the right to harm the natural environment? Why or why not?
6. Do we have the responsibility to change our lifestyle so that we can protect nature? (examples of changes include, driving smaller cars, eating less meat, riding the bus)
7. Do you think technology can replace nature, making environmental protection not important?
8. If protecting the environment would cost a lot of money should we still protect it? Why/why not?
9. Do you care about nature? Why or why not?
10. Do you think most people care about nature? Why or why not?
11. How do you feel about animals, trees, and the oceans?
12. Is it important to take care of the earth? Why or why not?
13. How do you see the future of the natural environment?

Questions related to Social values

14. Do you care about people outside of your family and your friends? Why or why not?
15. What is your view of people in general?
16. How should people be treated? Why?
17. How do you feel when people are treated badly?
18. What are some of your most important goals in life?
19. If you could improve the world, what would you do?
20. Is it important to about others, such as your classmates, the poor, or the homeless?
21. How important are the following, equality, social justice, and world peace?

Nature related questions

22. Do you consider yourself an environmentalist? If yes, when was the first time you saw yourself as an environmentalist?
23. Where do your views about the natural environment come from?
24. Do you think that caring for nature makes people care for people?
25. How do you respond to environmentalists?

Environmental Science Students only

26. What are your thoughts about the class?
27. Has this class changed you? If so, how?
28. Does the class affect what you do or how you think?