

**Identity & the Environment:
Social Factors that Shape Our Relationship with Environmental Spaces**

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ABSTRACT

In order to fully address environmental problems of our time, we need diverse perspectives to take on leadership roles. To do so, we need to prime young children and students to help them feel comfortable in environmental spaces. However, if young children and students of different cultural or ethnic backgrounds have different experiences in environmental spaces, we might not be generating a diverse pool of environmental stewards we are looking for. My thesis asks the question, “How do culture and ethnic identity influence a person’s relationship with environmental spaces?”. My study includes a survey that collected over 400 responses, as well as information from 11 interviews of environmental professionals to explore personal experiences in navigating these spaces. The combination of doing a survey and interviews allowed for a comprehensive collection of both quantitative and qualitative data. My data shows that people of all cultural backgrounds and ethnic identities experience a variety of challenges with entering environmental fields. However, my data also shows that BIPOC individuals experience lower feelings of belonging, feelings of comfort outside, feelings of community, enthusiasm for environmental issues, exposure to nature while young, and support from family. In order to address both general challenges and POC-specific challenges, we need to focus on environmental education programming, better funding for public lands, parks, and environmental organizations, investment into outdoor recreation opportunities for children, and DEIBJ initiatives in environmental spaces.

KEYWORDS

ethnic identity, culture, social science, environmental careers, outdoor recreation

INTRODUCTION

Humans have created significant environmental problems that affect natural and urban spaces alike, whether it be pollution, shrinking forests, heat islands, climate change, or our immense energy consumption. In response, professionals from the environmental sector have risen to the challenge to address these crises head on. In order to fully address environmental problems of our time, we need both a skilled and diverse workforce (Thomas et. al 1995). However, the workforce in many environmental fields in the United States, with leadership in particular, lacks adequate diversity. This comes from a difference in exposure to environmental spaces and ideas, which are important in generating interest for the environmental field (Sanvichith 2011, Thomas et. al 1995).

In this paper, environmental spaces are referring to the environmental workforce, environmental academic disciplines, areas of outdoor recreation, and environmental community groups.

This lack of diversity in environmental spaces has been addressed in American academia, and significant research has been done on how relationships with environmental spaces are formed. For one, geographical location and physical space has been a thoroughly discussed topic. Natural spaces are valuable, but the access to quality green spaces today is unequally distributed—ethnic minorities have been shown to have less access to quality green spaces (Bryne et al. 2009, Jennings et al. 2012, Sister et al. 2010, Wilson et al. 2008). It is also known that socioeconomic status contributes significantly to a person's exposure to environmental spaces and environmental ideas (Dai, 2011, Huang, 2023). However, current research does not cover the more complex and nuanced social dimensions. Although there are many social dimensions to frame one's experience in environmental spaces, there is a particular gap in literature on how people's *cultural experiences, including experiences related to one's ethnic identity*, contribute to their relationship with environmental spaces. Culture and ethnic identity will be the foci of this paper.

Culture & ethnic identity extensively informs how we interact with the world. This identity interacts with past life experiences, individual values, behavior, knowledge, and future opportunities (Nguyen 2020, Tran 20218, Bitten 2018). In order to more easily understand how all

of these dimensions relate to ethnic identity, we can divide these dimensions across 3 distinct point in time—a person’s past (life experiences and upbringing), a person’s present (values, behaviors, knowledge), and a person’s future (job opportunities, relationship with the environment). By breaking down social experience into 3 different time scales, it becomes easier to understand their value and weight.

In my thesis, I ask, “How do culture and ethnic identity influence a person’s relationship with environmental spaces?” To narrow the scope, I focused on California. For the survey, I focused on the UC Berkeley community—participants will have a shared experience in higher education, which is a variable I can keep constant while looking into differences in variables such as age and ethnicity. I will be focusing specifically on students in ESPM 50AC. For the interviews, I focused on two environmental non-profits—one in the Bay Area and one in Los Angeles. Three sub questions, temporally organized, will allow for a comprehensive review of these relationships.

1. What are individuals’ past experiences? In other words, how were they raised in relation to environmental spaces?
2. What are an individual’s present experiences? In other words, what are their current values, behaviors, job positions, academic interests, and knowledge of environmental spaces?
3. What do individuals’ perceive to be their future experiences? In other words, where can they find themselves in the workforce in the future, and what barriers do they foresee when entering different fields?

Both the survey and interviews will ask questions that address each of the 3 subquestions. subquestion 1, I anticipate that there will be statistically significant differences in both outdoor exposure and outdoor preferences between ethnic groups. For subquestion 2, I predict that values will be relatively similar, with deviations between different ethnic groups that are not statistically significant for values and knowledge, but statistically significant for behaviors and work they are involved in. I anticipate that pro-environmental behavior and outdoor involvement will be lower for ethnic minorities. For subquestion 3, the p-values of individual questions within the survey were used to identify statistically significant data. Looking at key questions and answers will help uncover trends that might be occurring in different ethnic communities. The interviews will be compared with each other and current literature. By using both research methods, I hope to gain a comprehensive understanding of what factors go into a person’s relationship with environmental spaces.

EXTENDED INTRODUCTION

Connection to environmental spaces & The 3 Dominant Dimensions

The overall theme, which I will coin “connection to environmental spaces”, can be broken down into three dimensions in today’s research. First is the geospatial dimension. The research in this dimension is focused on the locality of physical environmental spaces, which are commonly referred to as “green” and “blue” spaces. Research here is concerned with accessibility and frequency of use. Academics have thoroughly explored this dimension (Bryne et al. 2009, Jennings et al. 2012, Sister et al. 2010, Wilson et al. 2008). It is relatively straightforward to find trends in use relative to distance. Generally speaking, the scholarly community has found that greater distances from green spaces have resulted in less use and exposure. It has also been found that ethnic minorities have disproportionately lower access to green spaces.

The second is the economic dimension. The research here is focused on environmental spaces that include educational access, green and blue space quality, and quality of environmental services. Dai, 2011 and Huang, 2023 have both displayed that higher economic status contributes positively to an individual’s access to green spaces and environmental education programs and classes. Structural inequalities often create monetary challenges for People of Color, thereby acting as another barrier to green spaces and spaces that can provide quality environmental education.

The third is the social dimension. This area of research is the most underdeveloped of the three. This dimension includes variables such as upbringing, family & friends, culture, and educational experience. It is much more challenging to systematically review how the social dimension influences a person’s relationship with environmental spaces, especially when compared to the first two dimensions, which deal with more rigid numerical data (distance, income).

Today, the challenges that Communities of Color face are not as violent as struggles in the past, but still exist as a lived experience. As for environmental spaces, structural and institutional barriers to entry have excluded minority communities and People of Color (Warren, 2021). Additionally, environmental spaces have unique cultures, attitudes, and practices that tend to contribute to this exclusion (Gibson-Wood, 2012).

Many fields and organizations, as a whole, do not particularly have issues with diversity. The Forest Service, for example, has taken steps throughout the years to diversify their workforce, and has done so with decent success. However, this diversification has been skewed towards certain positions, such as administrative support positions, and not others, such as leadership positions (Thomas et al. 1995). This “diversification hire” does not solve anything, but rather perpetuates the reality in which minority communities do not get to make decisions and do not get to equally share power.

Methodology

The information I am trying to collect is, by nature, qualitative. However, data is easier to viewed when visualized, and quantitative data is easily visualized through graphs. Some information can easily be converted into quantitative data, such as the frequency of recycling (instead of “do you recycle”?) Although both of these questions get at the larger question of “what actions do you do that support the environment”, the question regarding the frequency of recycling is a question that is quantitative in nature. These quantitatively answerable questions will be collected in a survey.

For questions that cannot be easily translated to quantitative forms, I decided to conduct interviews. Questions such as “What role does your identity play in your relationship with environmental spaces and outdoor recreation?” and “Do you think there are/were any barriers to entry for your career, or careers in the environmental field in general?” are direct and personal, and allow for a deeper exploration of this topic.

In summary, both methods aim to better understand individuals’ social connection to environmental spaces. The three subquestions help us focus on the important aspects of this topic.

Later in this paper, I will share three dominant themes that apply to each of the subquestions. Figure 1 below visually describes the methodology of this paper.

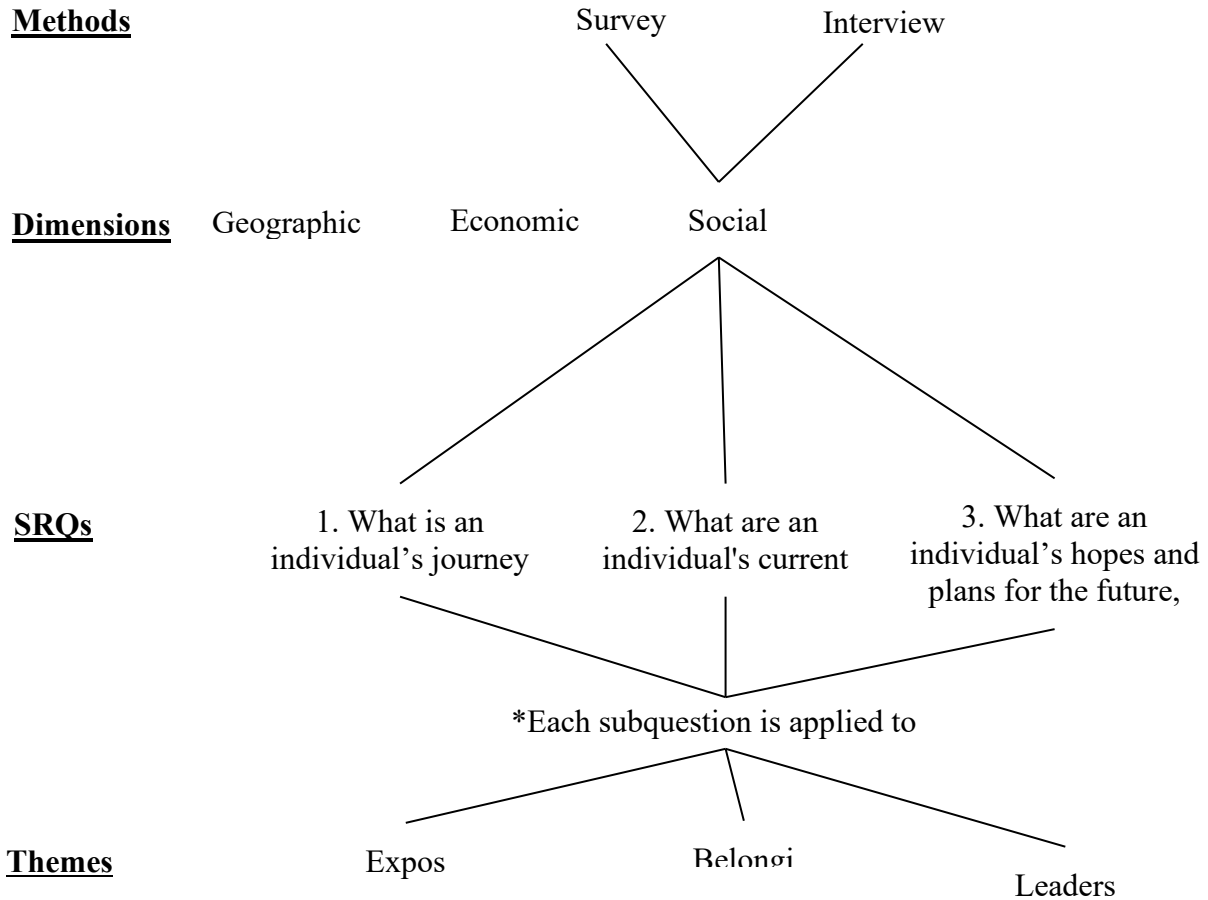


Figure 1. Relationship between Methods, Dimensions, Subquestions, and Themes.

Background

The people

This study takes place across urban areas in California (that being Berkeley, CA, Palo Alto, CA, and Los Angeles County, CA).

For the survey, the UC Berkeley undergraduate student body was selected as the study population. Access to the population is one of the leading reasons for this selection. Ethnic diversity is also one of the reasons that makes UC Berkeley a particularly valuable study site. Many variables are also very similar. By keeping educational background and age constant, we can better isolate ethnic data to collect meaningful data on the impact of ethnicity on one's relationship with environmental spaces. We can also control for variables that might differ, such

as economic status. By grouping data based on individuals' economic status, we can greatly reduce the effect economic status has on relationship with environmental spaces.

For the interview, 2 environmental organizations and UC Berkeley faculty were selected as the study population. The first organization is TreePeople, a non-profit based in Beverly Hills, CA focused on tree planting, local restoration, and community engagement. The second is POST (Peninsula Open Space Trust), a land trust (non-profit organization) based in Palo Alto, CA focused on protecting open spaces in the South Bay Area and the San Francisco Peninsula. Access to these groups is one of the leading reasons for this selection—I worked at TreePeople as a AmeriCorps Member during the Summer 2023 season. As for POST, a mentorship program connected me with an employee a couple of years ago.

The setting

By being situated in the Bay Area of California, individuals who are and have been students have relatively easy access to outdoor spaces, from beaches to snowy mountains to dense forests.

UC Berkeley is also a leader in environmental degree programs, which makes it a hub for people who want to go into careers. It is one of the top universities for forestry, environmental science, and environmental engineering (source)

As for the 2 environmental organizations, TreePeople and POST are both well funded with diverse sets of employees.

Like any study that seeks to narrow its scope, this study will not be able to describe or discuss topics related to the experiences of individuals not exposed to the same type of higher education, and individuals not between the ages of 15-45.

Situation among other related studies on environmental relationships

This study is extremely valuable because unlike most studies that have explored individuals' relationship with the environment, this study focuses on *lived experiences*. We have the tools to think about opportunity and exposure from the lens of geography and economic access, but have yet to find significant information about identity, behavior, and background isolated from geography and economic data.

METHODS

Study Organization

I have decided to use two methods. The first method is a survey, which I administered to gain valuable qualitative data and to visualize larger trends. I also conducted interviews to learn about people's individual stories and to dive deeper into personal experiences.

Survey

Administration of Survey

Individuals were contacted through the class using bCourses, UC Berkeley's official campus Learning Management System (LMS), using the open-source Canvas platform. As incentive, students were given extra credit for their completion of the survey.

The survey was created using Qualtrics, an experience management software.

Study population

To gather information from a variety of perspectives and in order to get information from individuals interested in environmental spaces, I sent out a survey to UC Berkeley students enrolled in the class ESPM 50AC: Introduction to Culture and Natural Resource Management.

Because this group is fairly uniform in age and all come from a single university, more factors are able to be controlled which makes the results of my questions more sound given fewer demographic biases.

Survey organization

The survey was broken down into 3 sections. The first section contained 3 questions, each of which contained 7, 13, and 13 sub-questions, respectively. The second section contained 6 questions, each of which contained 6, 6, 14, 14, 0, and 0 sub-questions, respectively. The third section contained 2 questions, each of which contained 10 and 7 sub-questions, respectively. Survey responders were also given the opportunity to elaborate on their responses in separate text-

box questions. Apart from questions requesting optional elaboration, the survey contained 11 questions and 90 sub-questions in total.

Eight of the questions used a matrix-table format (see Figure 2), which allows for respondents to view a large list of sub-questions on one page, and to select from a list of 5 answers that apply for each of the sub-questions. Depending on the question, the 5 answers were either a) Strongly disagree, Disagree, Neutral, Agree, Strongly Agree, b) Not important, Not particularly important, Neutral, Important, Very Important, c) Never, Seldom, Sometimes, Often, Very Often, or d) Not confident, Slightly not confident, Neither confident or unconfident, Slightly Confident, Very confident.

One of the questions used a rank order format, which requested respondents to rank the importance they placed on 13 subjects.

Two of the questions used an open-ended text-entry format, which allowed respondents to freely answer questions in any way they chose.

At the end of the survey, respondents were also asked 13 questions on demographics, which included questions on age, ethnicity/race, gender, year at UC Berkeley, major/minor, college, income, hours spent a week working a job for pay, household size, living situation, current zip code, longest place of residence before attending UC Berkeley, and main zip code from ages 10-18. See the Appendix for the full survey.

What is your level of agreement with the following statements?

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
I am interested in environmental careers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spending time in nature is important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental issues are important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I participate in actions that address environmental issues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental issues are important to my family.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spending time in nature is important to my family.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My family participates in actions that address environmental issues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 2. Matrix table example.

Visualization & Analysis

Survey data was visualized using Qualtrics software. The “Relate” function in “Stats iQ” within the “Data & Analysis” tool allowed for the visualization of important trends—demographic data applied to individual subquestions. In order to compare survey data between White people and POC, I related individual questions with the variable, “Caucasian”, a distinct answer in the “What is your ethnicity/race? (Mark all the apply)” question. There, Qualtrics was able to provide P-Values based on Chi-Squared Testing, allowing for the measuring of statistical significance for the two variables in question (“Caucasian” and not Caucasian (POC)). Additionally, income data was compared to survey data in order to get a better understanding of other potential contributors to statistically significant survey data trends.

Because of the vast amount of data available due to the extensive number of questions, X subquestions have been highlighted in this paper. These X questions were chosen based on their statistical significance and their relative importance to this topic. At least 1 survey subquestion addresses each SRQ applied to each theme.

Interview

Administration of Survey

Individuals were contacted over email. A mentor and a previous job were sources for acquiring emails. All interviews were recorded. Notes were taken during the interview.

Interview population

From the available pool of interviewees (TreePeople employees, POST employees, UC Berkeley professors), I sought a collection of interviewees that a) was made up of leaders in their respective fields, b) was diverse, including men and women from a variety of ethnic identities, and c) I perceived as passionate about their work. I aimed to conduct somewhere between 10 and 20 interviews.

Interview organization

The interview was divided into 5 distinct sections.

1) A disclaimer and introduction, where I introduce myself—who I am, what school I go to, what I study, and why this project is important to me. I then talk about how the interview is structured (questions have been written down, but with hopes of having a relatively freely flowing conversation). I then go on to state that the individual will remain anonymous, and that I will be sharing my thesis after completion. After asking permission to record and if the interviewee has any questions, the interview starts.

2) Here, recording software (Zoom recording function or the Voice Memo app on iPhone) is turned on, and the first set of questions is asked. Coded 1a and 1b in Table X, interviewees are asked a set of preliminary questions, from asking the interviewee to introduce themselves and to share details about their workplace and current job position.

3) After a natural completion of this question, the second set of questions is asked (noted as 2a and 2b in Table X. 2a and 2b seek to understand an individual's involvement in and path to environmental spaces. It allows us to orient ourselves and to start painting a picture of a new character who might teach us something new.

4) The interview then enters the main questions I am interested in exploring in this thesis, which includes if culture and ethnic identity play a role in one's relationship with environmental spaces and if there are and/or were any barriers to entry for their career, or careers in the environmental field in general (3a and 3b).

5) For the fifth section (coded 4), interviewees were asked about their hopes for the future with their careers and the relationship with environmental spaces.

For each interview, notes were taken live either on a document online (10 interviews) or a notebook (1 interview). Recordings allowed for repeat listens.

Category	Subquestion Focus	Code	Question	Secondary Probing Questions
Introduction	/	1a	Can you introduce yourself?	Name, pronouns if you would like, where you work, and your current job title
Introduction	/	1b	Can you explain what the organization you are a part of focuses on?	
Introduction	2	1c	Can you explain what you do at your current job in more detail?	
Involvement In & Path To the Environmental Field	1	2a	How did you find your way towards your current position?	Did you have previous jobs in the environmental field? Did you study a related topic while in high school, college, or graduate school? What was your exposure to environmental spaces and outdoor recreation growing up?
Involvement In & Path To the Environmental Field	2	2b	What about your job & working in the environmental field excites you?	What part of this job & working in the environmental field is most important to you?
Social determinants of Relationship with Environmental Spaces	1/2	3a	What role does your identity play in your relationship with environmental spaces and outdoor recreation?	Some examples: Family, ethnicity, religion, local community/region, culture
Social determinants of Relationship with Environmental Spaces	1	3b	Do you think there are/were any barriers to entry for your career, or careers in the environmental field in general?	Some examples: Distance, money, family, culture
Social determinants of Relationship with Environmental Spaces	3	4	What are your hopes for the future with your career and your relationship with nature?	
Additional optional Questions	1/2	5	What is your experience with outdoor recreation?	

Visualization & Analysis

Interview notes and recordings were reviewed to collect data. Online audio speeding websites quickened the process. Interview data was visualized in 2 ways: thematic coding, as seen in Table x, and a snapshot of select quotes, as seen in Table x.

For thematic coding, themes, subthemes, and common topics within the subthemes were defined. Each individual was assigned a number for anonymity. An “x” was noted next to a theme that an individual talked about. Numbers were also recorded next to a theme that an individual talked about—a number was associated with the impact the topic had on the speaker on a scale of 1 to 5. For example, If an individual explicitly talked about their parents spending time outside or

in environmental careers, a number would be assigned depending on how involved the parents were.

Number associated with an individual		1	2	3	4	5	6	7	8	9	10	11
Theme code	Topic											
1.1a	Parents are supportive and understanding of joining environmental spaces											
1.1b	Parents have a strong connection with environmental spaces											
1.1c	Exposed to environmental spaces during childhood											
1.2	Somewhat happened upon their environmental career by chance											
1.3	Communication barriers/environmental spaces are too science-coded											
1.4a	Educational barriers											
1.4b	Funding barriers											
1.4c	Systemic racism as a barrier											
2.1a	Strong personal connection with outdoor recreation											
2.1b	Strong personal connection with environmental spaces											
2.2a	Love the people in this field											
2.2b	Want to make a difference											
2.3a	References the need for courage to enter environmental spaces											
2.3b	Didn't/doesn't feel like they fit in with the dominant culture in environmental spaces											
2.3c	Feels different											
2.3d	References the need to work harder as a POC											
3.1a	References feeling an obligation to do this work due to low representation											
3.1b	Wants to share knowledge/mentor others											
3.2	Lacked a environmental mentor/role model when first navigating environmental spaces											

RESULTS

Survey

Administration of Survey

Responses were recorded over a 20 day period, with the vast majority of responses recorded over the first 10 days after release.

Study population

Out of 471 students who received the survey, 437 students completed. Out of the students that took the survey, 335 out of 364 who answered the question, “What is your age?” answered between 18 and 22. 409 answers were recorded for the question, “What is your ethnicity/race? (Mark all that apply)”. 61% (222 answers) were “Asian”, 25.5% (93 answers) were “Caucasian”, 17% (62 answers) were “Hispanic or Latino”, 3.8% (14 responses) were “Black or African American”, 3% (11 responses) were “Other”, 1.1% (4 responses) were “Native Hawaiian or Other

Pacific Islander”, and 0.8% (3 responses) were “Native American or American Indian”. 370 answers were recorded for the question, “What gender do you identify with? (Mark all that apply)”. 51.4% (187 answers) were “Female”, 46.2% (168 answers) were “Male”, 2.5% (9 answers) were “Non-binary”, and 1.6% (6 answers) were “prefer not to answer”. 338 people responded to the question, “What is your income (if you are supported by your parents, combine your and your parents’ income)”. Distribution was relatively uniform: 19.5% (66 people) had incomes of “Less than \$25,000”, 8.3% (28 people) had incomes of “\$25,000 to \$49,999”, 10.7% (36 people) had incomes of “\$50,000 to \$74,999”, 9.2% (31 people) had incomes of “\$75,000 to \$99,999”, 10.7% (36 people) had incomes of “\$100,000 to \$149,999”, 9.8% (33 people) had incomes of “\$150,000 to \$199,999”, 11.5% (39 people) had incomes of “\$200,000 to \$299,999”, 6.2% (21 people) had incomes of “\$300,000 to \$399,999”, 5.3% (18 people) had incomes of “\$400,000 to \$499,999”, and 8.9% (30 people) had incomes of “\$500,00+”.

Visualization & Analysis: Highlighted data (Table 1b).

Each of the following questions had statistically significant results, using chi-squared testing: “My family would understand me if I went into an environmental career.” (p-value <0.00001), “How frequently do you CURRENTLY participate in the following activities? Other outdoor recreational activities not listed above (skiing, climbing, mountain biking, kayaking, canoeing, surfing, etc)” (p-value <0.00001), “I feel comfortable and confident in nature and the outdoors.” (p-value <0.00001), “My identity is well represented in environmental careers.” (p-value 0.0000230) “How frequently did you participate in the following activities BEFORE the age of 18? Other outdoor recreational activities not listed above (skiing, climbing, mountain biking, kayaking, canoeing, surfing, etc)” (p-value 0.0000297), “I feel empowered to affect change towards a sustainable & environmentally just future.” (p-value 0.000508), “Environmental issues are important to me” (p-value 0.000786), “How frequently do you CURRENTLY participate in the following activities? Visiting a local park” (p-value 0.000994), “Environmental issues are important to my family.” (p-value 0.00131), “How frequently do you CURRENTLY participate in the following activities? Hiking” (p-value 0.00417).

Table 1b. Selected Survey Subquestions

	SQ 1: Past experiences & Upbringing	SQ 2: Current values, behavior, knowledge	SQ 3: Hopes and plans for the future
Theme 1: Exposure	<ul style="list-style-type: none"> - How frequently did you participate in the following activities BEFORE the age of 18? - My high school had strong environmental science programs and classes. - BEFORE the age of 18, my family could easily afford to do activities in nature. - BEFORE the age of 18, natural spaces and the outdoors were close by. - BEFORE the age of 18, I had easy access to outdoor activities I was curious about. - BEFORE the age of 18, I had easy access to environmental educational materials I was curious about. 	<ul style="list-style-type: none"> - How frequently do you CURRENTLY participate in the following activities? - CURRENTLY, I can easily afford to do activities in nature. - CURRENTLY, natural spaces and the outdoors are close by. - CURRENTLY, I have easy access to outdoor activities I am curious about. - CURRENTLY, I have easy access to environmental educational materials related to the environment. 	<ul style="list-style-type: none"> - I am interested in environmental careers.
Theme 2: Belonging	<ul style="list-style-type: none"> - Spending time in nature is important to my family. - Environmental issues are important to my family. 	<ul style="list-style-type: none"> - Spending time in nature is important to me. - Environmental issues are important to me. - My identity is well represented in environmental careers. - I feel comfortable and confident in nature and the outdoors. - My ethnic identity makes it hard to feel comfortable in outdoor spaces and the environmental field. - My cultural background makes it hard to feel comfortable in outdoor spaces and the environmental field. 	<ul style="list-style-type: none"> - My family would understand me if I were to go into an environmental career.
Theme 3: Leadership	<ul style="list-style-type: none"> - My family participates in actions that address environmental issues. - My parents actively take care of the environment. 	<ul style="list-style-type: none"> - I participate in actions that address environmental issues. - I feel comfortable and confident in environmental careers and spaces 	<ul style="list-style-type: none"> - I feel empowered to affect change towards a sustainable & environmentally just future.

Interview

Interview process

The interviews were conducted over the course of 29 days. Interviews took place over Zoom (7 meetings), In-person (2 meetings), Google Meet (1 meeting), and the phone (1 meeting). Meetings were recorded using the Zoom recording function (8 meetings) and the Voice Memos app on iPhone (3 meetings) (after being given permission to record). All interviews were between 30 minutes and 70 minutes in length, with most interviews between 45 minutes and 60 minutes in length.

Study population

A combination of individuals who volunteered to be interviewed and individuals who were hand-picked made up the collection of interviewees. 11 interviews were conducted. 7 POC individuals were interviewed and 4 white individuals were interviewed (including one European immigrant). All interviewees were leaders in their field, including Chief Officers, Department Chairs, Directors, Senior Managers, general managers, and professors.

Analysis

On average, a little under 5 topics (4.73) surfaced per interviewee. On average, little under 3 people (2.79) addressed each theme. Many individuals spoke about how they were exposed to environmental spaces as a child, how their parents were supportive and understanding of them going into an environmental career, and their desire to share knowledge and mentor others moving forward.

A table of select quotes (Table 4 in the RESULTS section) was created to see the real ways in which each of the three themes: exposure, belonging, and leadership manifest in lived experiences. Each theme contains 3-4 quotes from a variety of interviewees.

Theme code	Number associated with an individual	1	2	3	4	5	6	7	8	9	10	11
	Topic											
1.1a	Parents are supportive and understanding of joining environmental spaces	3	5				5					x
1.1b	Parents have a strong connection with environmental spaces	3		1			5					
1.1c	Exposed to environmental spaces during childhood	3	3	2		1	5 x	x	x			
1.2	Somewhat happened upon their environmental career by chance	x	x	x	x							
1.3	Communication barriers/environmental spaces are too science-coded						x					
1.4a	Educational barriers	-		x				x	x			
1.4b	Funding barriers						x					
1.4c	Systemic racism as a barrier	x										
2.1a	Strong personal connection with outdoor recreation		3.5	5			4					
2.1b	Strong personal connection with environmental spaces		4 x		4							
2.2a	Love the people in this field		x	x		x				x		
2.2b	Want to make a difference	x		x		x						
2.3a	References the need for courage to enter environmental spaces	x				x						
2.3b	Didn't/doesn't feel like they fit in with the dominant culture in environmental spaces		4		x							
2.3c	Feels different	4	5									
2.3d	References the need to work harder as a POC											x
3.1a	References feeling an obligation to do this work due to low representation		4									
3.1b	Wants to share knowledge/mentor others			x		x			x	x	x	
3.2	Lacked an environmental mentor/role model when first navigating environmental spaces			x						x		

Table 4. Selected Quotes.

Theme	Quote	From Individual #
Exposure	“My hope for the future is that as a society, we continue to grow generations that want to steward the land...I think that providing access to these certain natural spaces is a key element of that.”	6
Exposure	“My family just didn’t really understand what college was all about. And admittedly, I didn’t either.”	3
Exposure	“My dad always used to say, ‘Why are you still in school?’”	11
Belonging	“Everything...is a language and culture. [The] environmental [field] is a language and culture.”	2
Belonging	“For better or for worse, I kinda [got] used to being the one Asian person.”	1
Belonging	“It requires a lot of courage. Because the imposter syndrome is real.”	2
Belonging	“Every step in the journey has been a struggle.”	11
Leadership	“A lot of people in management positions don’t look like me.”	3
Leadership	“I mentor BIPOC [individuals]. ...That is a huge responsibility. ... They want to be mentored by someone like me... because they know that I understand their experiences. And that takes a lot of emotional work, a lot of labor, financial support... you don’t get credit for that”	11
Leadership	“I hope to...provide mentorship, leadership, and learning opportunities, as someone who didn’t have that.”	11

DISCUSSION

Three main themes arise from the survey and interview data, each of which make up a significant part of a person’s lived experience in and around environmental spaces. The three themes for a relationship with environmental spaces are prior exposure, one’s comfort, confidence, and feelings of belonging, and exposure to and participation with leadership.

The results demonstrate that with each of these themes, POC disproportionately experience more barriers. However, this is not to say that all individuals experience challenges, and that ethnic identity isn’t the only factor. Rather, many social experiences define a relationship with environmental spaces, and ethnic identity is an important one.

The following paragraphs will address these three themes. The subquestions defined in earlier paragraphs will help comprehensively frame each theme.

Theme 1: Exposure

There are always challenges to recreating outside. POC participate less frequently in environmental spaces. By mainly exploring the social dimension, we notice that POC families care less about these spaces, thereby exposing their children to them less. Many families simply don't see the value and have a different set of priorities, often due to the fact that families of POC often have immigrant backgrounds and cultures rooted in other countries.

Exposure to environmental spaces poses as one of the greatest challenges to adequate diversity in the environmental field, as described by Haynes in their 2015 publication, "A life-cycle analysis of minority underrepresentation in natural resource fields".

Theme 2: Belonging

The most statistically striking of the 3 themes, it is very clear that POC feel less represented in environmental spaces and that environmental issues are not as important to POC individuals or their families. When interested in environmental spaces, are less encouraged and understood by their families. Being a POC in environmental spaces is often lonely—many struggle with the isolation. It is discouraging to young People of Color who are seeking jobs—why would a person pick a job that doesn't have a workforce they can identify with?

This is a reality also explored by Armitano Warren in their dissertation, "There's Not Many Times Where People Ask For Your Story': Toward a More Complete Narrative Reflecting Experiences of Environmental Professionals of Color" who describe this loneliness in an "Othering" framework, which is a term used to describe when one is treated as not part of the group or different in some way.

Theme 3: Leadership

POC individuals also have fewer leaders to look up to, whether it be family that doesn't participate as much in actions that address environmental issues, feeling comfortable and confident in environmental careers and spaces, and feeling empowered to affect environmental changes. This extends into adulthood—through lack of exposure to POC-identifying environmental leaders, few POC youth become leaders themselves. For those that do, it is a lonely experience. Many hope to “provide mentorship, leadership, and learning opportunities, as someone who didn't have that”, but feel overwhelmed by the sense of responsibility and obligation. This note is similar to Theme 2, in which fewer POC individuals in these spaces make these careers challenging (Armitano Warren 2021).

It is also important to note the a lack of POC leadership stems from systemic barriers and inadequate recruitment of all communities (Taylor 2015).

Synthesis

Understanding Culture & Ethnic Identity Holistically

Both survey and interview data reveal that individuals from all ethnic backgrounds experience barriers to environmental spaces across all three themes. It is important to address this as reality and to not minimize the challenges that are faced by individuals of all ethnic identities.

Commentary on Ethnic Identity

Nevertheless, ethnic identity drastically affects many people's relationship with environmental spaces. In some situations, other factors such as economic status or community culture have a stronger impact on a person's experience in these spaces. That being said, it is extraordinarily difficult to separate these factors from one another, since they mix, overlap, and influence one another. In any case, ethnic identity has a strong effect on most people's experiences—it was strikingly clear that the relational strength with the environment for White individuals and POC individuals were different.

Limitations

Despite the depth of data collected from both the survey and interviews, a few factors create limitations on the application of this information to certain communities. For one, both the survey and interviews collected data from individuals residing in urban populations in California (that being the Bay Area and Los Angeles County). Relatively speaking, the Bay Area and Los Angeles County are liberal communities with a variety of natural spaces that are nearby, two factors that alter an individual's relationship with environmental spaces and their stewardship.

Survey demographics

Survey data was exclusively collected from one class (ESPM 50AC: Introduction to Culture and Natural Resource Management) at the University of California, Berkeley. As environmental coursework, this class attracts a demographic that has exposure to higher education and that has a relatively strong interest or connection to environmental spaces, which results in the survey population having a relatively higher connection to outdoor spaces when compared to the general population. With most students aged 18-22, there is also a smaller range of life experiences. All of these factors contribute to survey data that only reflects a very specific population.

Survey distribution method

All students in ESPM 50AC were given around 2 weeks to complete the survey. Due to the length of the survey, time frame students were asked to complete the survey in, and the fact that the survey was offered exclusively online, students might have had difficulty completing the survey, or completing the survey with fully developed thoughts. Additionally, each survey question was not required to be completed, so almost all of the questions had around a 80% response rate.

Because survey data is based on voluntary sampling, survey data might have been skewed towards the extremes, as people who cared to answer the survey likely had more opinions on the topic.

Interviews

Interview data was collected from organizations based in two cities—Beverly Hills, CA and Palo Alto, CA. With a Median household income of \$116,771 and \$214,118, respectively (source), Beverly Hills and Palo Alto dwarf the Median household income of California (\$91,905) and the United States (\$75,149). Although the organizations contacted serve more than just these cities, their location is reflective of the fact that these organizations are well funded. Relative to other environmental organizations, specifically environmental non-profit organizations, the resources, support, and capacity are great. Because of this, often overlooked aspects of an organization, such as DEI and Social Media & Communication departments also have more resources and support. This allows for teams and staff to be more diverse and inclusive of a variety of backgrounds, perspectives, and experiences. This might allow for a more diverse workspace relative to other environmental organizations, which would change individuals' experiences.

Future directions

There is great potential for studying this topic, and an opportunity to learn more. Both the survey and interview can be given to a wider variety of individuals.

For one, the survey could be given to students in non-environmental classes, or to community members in parks and farmer's markets. The survey could also be administered to non-California residents, who would be able to offer perspectives that are even more different. This would yield data that has participants of a greater age range from a greater variety of backgrounds, which is more reflective of the demographic of the state and country as a whole.

The interview could similarly be administered to a wider range of professionals, whether they be out of state or out of the environmental field in general. College students as well as young kids can also be interviewed to see how they perceive outdoor spaces and future careers.

It is important to note that different communities have different experiences, and ways they relate to environmental spaces. In order to be respectful and conscious of these differences, the wording for some or all of the questions in my survey and interviews will need to be changed or reworded.

Broader Implications

This study is important because it is one of the few projects to systematically and comprehensively look at the social factors that influence a person's relationship with environmental spaces. By collecting both strong quantitative data and personal qualitative data, this study was able to confidently identify how different communities have dissimilar experiences with each of the three themes.

Environmental spaces are filled with incredibly passionate people. People shape their lives and values around their careers and hobbies outside. It is a special space that often is distinguished from others—people in these spaces are often labeled as “granola”, in contrast to “normal”. As we've seen from the results, there are significant barriers to entering this field for people of all backgrounds. And POC experience even more—from recreation groups to environmental leadership, why must one have to feel alone, different? Why must one feel like their community is underrepresented?

Practical applications of the Research & Next Steps

For general improvements for people's interaction with environmental spaces, 3 key actions surface. *Note that some of these actions are economic solutions to social problems. As stated in earlier parts of this paper, it is extraordinarily difficult to separate the 3 themes of one's relationship to environmental spaces (that being geographic, economic, and social).*

1. Requiring environmental coursework in grade school and universities
2. Better funding for public lands and parks
3. Investment into outdoor recreation for children

We must make a change and in order to do so, we must make these spaces ours.

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REFERENCES

- Bitten, C. C. 2018. Perceptions of and Solutions to Inclusivity, Privilege, Wealth, and Whiteness in University Campus Gardens: Case study of the UC Berkeley Student Organic Garden (SOGA).
- Byrne, J., J. Wolch, and J. Zhang. 2009. Planning for environmental justice in an urban national park. *Journal of Environmental Planning and Management* 52:365–392.
- Clapp, A. 2010. Assessing the social impacts on urban street trees through the built environment in West Oakland, CA.
- Curran, W., and T. Hamilton. 2012. Just green enough: contesting environmental gentrification in Greenpoint, Brooklyn. *Local Environment* 17:1027–1042.
- Gauthier, V. S., J. Joseph, and C. Fusco. 2021. Lessons From Critical Race Theory: Outdoor Experiential Education and Whiteness in Kinesiology. *Journal of Experiential Education* 44:409–425.
- Germinaro, K., E. Dunn, K. D. Polk, H. G. de Vries, D. Daugherty, and J. Jones. 2022. Diversity in Outdoor Education: Discrepancies in SEL Across a School Overnight Program. *Journal of Experiential Education* 45:256–275.
- Gibson-Wood, H., Wakefield, S. 2012. “Participation”, White Privilege and Environmental Justice: Understanding Environmentalism Among Hispanics in Toronto - Gibson-Wood - 2013 - Antipode - Wiley Online Library. (n.d.).

- Hordyk, S. R., J. Hanley, and É. Richard. 2015. "Nature is there; its free": Urban greenspace and the social determinants of health of immigrant families. *Health & Place* 34:74–82.
- Huang, C.-W., C.-H. Hsieh, and C.-I. Chen. 2023. To see what we need: recognizing ecosystem services in a campus landscape through environmental education. *Landscape and Ecological Engineering*.
- Jennings, V., C. Johnson Gaither, and R. S. Gragg. 2012. Promoting Environmental Justice Through Urban Green Space Access: A Synopsis. *Environmental Justice* 5:1–7.
- Liu, J., and R. J. Green. 2023. The effect of exposure to nature on children's psychological well-being: A systematic review of the literature. *Urban Forestry & Urban Greening* 81:127846.
- Mackenzie, L. 2021. Where does the inequity lie? Trends in the Use, Access, and Impacts of UC Berkeley Campus Green Spaces on Undergraduate Students.
- Martin, M. J. R., S. A. Matthews, and B. A. Lee. 2017. The Spatial Diffusion of Racial and Ethnic Diversity Across U.S. Counties. *Spatial demography* 5:145–169.
- Sanvichith, J. 2011. Do Gardens Make You Green?: Home Gardens, Identity, and Pro-Environmental Behavior Among Southeast Asian American UC Berkeley Students.
- Seritan, I. 2017. "She Loves the River": Women Environmental Activists for Bay Area Watersheds.
- Sandoval, V. 2018. Green Gentrification Analysis: A Case Study of the East Bay Greenway in Oakland, California.
- Sister, C., J. Wolch, and J. Wilson. 2010. Got green? addressing environmental justice in park provision. *GeoJournal* 75:229–248.
- Schell, C., K. Dyson, T. Fuentes, S. Des Roches, N. Harris, D. Miller, C. Woelfle-Erskine, and M. Lambert. 2020. Ecological and evolutionary consequences of systemic racism in urban ecosystems. *Science* 369.
- Taylor, D. E. 2015. Gender and Racial Diversity in Environmental Organizations: Uneven Accomplishments and Cause for Concern. *Environmental Justice* 8:165–180.
- Thomas, Jennifer C. and Mohai, Paul. 1995. Racial, Gender, and Professional Diversification in the Forest Service from 1983 to 1992. *Policy Studies Journal* 23(2): 296-309.
- U.S. Census Bureau QuickFacts: California; Palo Alto city, California; Beverly Hills city, California. (n.d.).

Warren, E. 2021. “There’s not many times where people ask you for your story”: Toward a More Complete Narrative Reflecting Experiences of Environmental Professionals of Color.

Wilson, S. M., C. D. Heaney, J. Cooper, and O. Wilson. 2008. Built Environment Issues in Unserved and Underserved African-American Neighborhoods in North Carolina. *Environmental Justice* 1:63–72.

Wolsink, M. 2016. Environmental education excursions and proximity to urban green space – densification in a ‘compact city.’ *Environmental Education Research* 22:1049–1071.

APPENDIX

Table 1. Survey Questions.

Section	Main Questions	Sub questions/Minor questions	Answer Option	Additional questions
1	1.1: What is your level of agreement with the following statements?	<ul style="list-style-type: none"> - I am interested in environmental careers. - Spending time in nature is important to me. - Environmental issues are important to me - I participate in actions that address environmental issues. - Environmental issues are important to my family. - Spending time in nature is important to my family. - My family participates in actions that address environmental issues. 	Agreement (Strongly disagree, Disagree, Neutral, Agree, Strongly Agree)	<p>If you answered "Agree" or "Strongly Agree" to the question, "I am interested in environmental careers." above, what environmental careers are you interested in? (<i>List all below.</i>)</p> <p>If you would like to elaborate on any of your answers above, please do so here.</p>

1	1.2a: How important to you is addressing each of the following environmental issues?	<ul style="list-style-type: none"> - Climate change - Loss of biodiversity - Deforestation - Water scarcity - Pollution - Ocean acidification - Resource depletion - Land degradation - Air quality - Waste management - Toxic waste site management - Unequal access to green spaces - Chemicals in the environment 	Importance (Not important, Not particularly important, Neutral, Important, Very Important)	/
1	1.2b: Rank how important each of these environmental issues are to you.	<ul style="list-style-type: none"> - Climate change - Loss of biodiversity - Deforestation - Water scarcity - Pollution - Ocean acidification - Resource depletion - Land degradation - Air quality - Waste management - Toxic waste site management - Unequal access to green spaces - Chemicals in the environment 	Ranking system	If you would like to elaborate on any of your answers above, please do so here.
2	2.1a: How frequently do you CURRENTLY participate in the following activities?	<ul style="list-style-type: none"> - Visiting a local park - Visiting a national or state park - Gardening - Hiking - Camping - Other outdoor recreational activities not listed above (skiing, climbing, mountain biking, kayaking, canoeing, surfing, etc) 	Frequency (Never, seldom, Sometimes, Often, Always)	If you would like to elaborate on any of your answers above, please do so here.

<p>2</p>	<p>2.1b: How frequently did you participate in the following activities BEFORE the age of 18?</p>	<ul style="list-style-type: none"> - Visiting a local park - Visiting a national or state park - Gardening - Hiking - Camping - Other outdoor recreational activities not listed above (skiing, climbing, mountain biking, kayaking, canoeing, surfing, etc) 	<p>Frequency (Never, seldom, Sometimes, Often, Always)</p>	<p>If you would like to elaborate on any of your answers above, please do so here.</p>
<p>2</p>	<p>2.2: How frequently do you participate in the following activities?</p>	<ul style="list-style-type: none"> - Sorting my trash in the appropriate receptacles. - Unplugging cords when they are not in use. - Carrying reusable utensils/dishes/containers when purchasing food/drinks. - Bringing your own bags when you go shopping. - Supporting politicians and legislation that address environmental issues. - Buying locally grown produce. - Buying organic produce. - Fixing a belonging before buying a new one. - Reading articles or watching videos related to climate change (not for school work). - Avoiding buying products that are landfill material. - Composting. - Recycling. - Monetarily supporting environmental organizations. - Volunteering your time to support environmental organizations. 	<p>Frequency (Never, seldom, Sometimes, Often, Always)</p>	<p>If you would like to elaborate on any of your answers above, please do so here.</p>

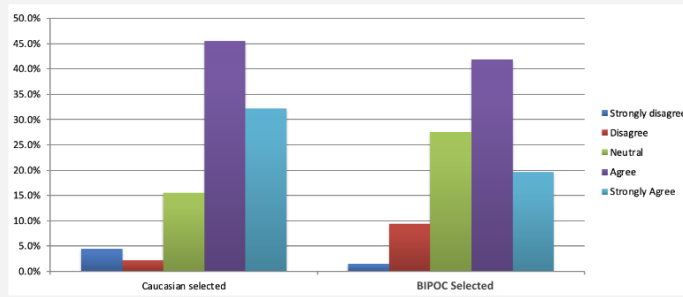
<p>2</p>	<p>2.3: How confident would you be in clearly explaining the following topics to a college student?</p>	<ul style="list-style-type: none"> - Where my home’s energy comes from - Key processes in the waste management system - Key processes in climate change - What environmental justice is - What environmental ethics are - Where my city’s energy comes from - Where my city’s water comes from - Common biogeochemical processes - What biodiversity is - What renewable energy is and how it works - My city’s waste management system - What can be composted and what cannot be composted - What can be recycled and what cannot be recycled - How pollution affects my city 	<p>Confidence (Not confident, Slightly not confident, Neither confident nor unconfident, Slightly confident, Very confident)</p>	<p>If you would like to elaborate on any of your answers above, please do so here.</p>
<p>2</p>	<p>2.4: Are you engaged in any clubs, organizations, and/or institutions related to the environment and/or outdoor recreation? If so, please elaborate.</p>	<p>/</p>	<p>Free response</p>	<p>/</p>

2	2.5: Are you engaged with any environmental issues? If so, please elaborate	/	Free response	/
3	3.1: What is your level of agreement with the following statements?	<ul style="list-style-type: none"> - My high school had strong environmental science programs and classes. - My parents actively take care of the environment. - BEFORE the age of 18, my family could easily afford to do activities in nature. - BEFORE the age of 18, natural spaces and the outdoors were close by. - BEFORE the age of 18, I had easy access to outdoor activities I was curious about. - BEFORE the age of 18, I had easy access to environmental educational materials I was curious about. - CURRENTLY, I can easily afford to do activities in nature. - CURRENTLY, natural spaces and the outdoors are close by. - CURRENTLY, I have easy access to outdoor activities I am curious about. - CURRENTLY, I have easy access to environmental educational 	Agreement (Strongly disagree, Disagree, Neutral, Agree, Strongly Agree)	If you would like to elaborate on any of your answers above, please do so here.

		materials related to the environment.		
3	3.2: What is your level of agreement with the following statements?	<ul style="list-style-type: none"> - I feel empowered to affect change towards a sustainable & environmentally just future. - My identity is well represented in environmental careers. - My family would understand me if I were to go into an environmental career. - I feel comfortable and confident in nature and the outdoors. - I feel comfortable and confident in environmental careers and spaces. - My ethnic identity makes it hard to feel comfortable in outdoor spaces and the environmental field. - My cultural background makes it hard to feel comfortable in outdoor spaces and the environmental field. 	Agreement (Strongly disagree, Disagree, Neutral, Agree, Strongly Agree)	If you would like to elaborate on any of your answers above, please do so here.
Demographics	/	<ol style="list-style-type: none"> 1. What is your age? 2. What is your ethnicity/race? (<i>Mark all that apply</i>) 3. What gender do you identify with? 4. What year are you at UC Berkeley? 5. What is/are your major(s) and minor(s)? 6. Which college(s) are you in? 7. What is your income (if you are supported by your parents, combine you and 	<ol style="list-style-type: none"> 1. Under 18, 19, 20, 21, 22, 23, 24-29, 30-39, 40-49, 50+ 2. Caucasian, Black or African American, Hispanic or Latino, Native American or American Indian, Asian, Native Hawaiian or Other Pacific Islander, Other please specify 3. Female, Male, Non-binary, Prefer not to answer 	/

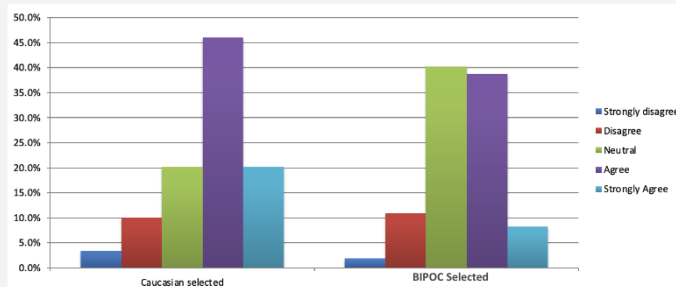
		<p>your parents' income)</p> <p>8. About how many hours a week do you usually spend working a job for pay?</p> <p>9. What is your household size? (Please include yourself)</p> <p>10. What best describes where you currently live?</p> <p>11. What is your current zip code?</p> <p>12. What is your place of longest residence before coming to UC Berkeley? (If you are a U.S. resident, identify by city, state, and zipcode. If you are an international student, please enter the city and country).</p> <p>13. What was your main zip code from ages 10-18?</p>	<p>4. Freshman, Sophomore, Junior, Senior, Transfer student–junior status, Transfer student–senior status, Graduate student, Other</p> <p>5. Free response</p> <p>6. Free response</p> <p>7. Less than \$25000, \$25000 to \$49999, \$50000 to \$74999, \$75000 to \$99999, \$100000 to \$149999, \$150000 to \$199999, \$200000 to \$299999, \$300000 to \$399999, \$400000 to \$499999, \$500000+</p> <p>8. I don't have a job, 1 to 5 hours a week, 5 to 10 hours, 10 to 20 hours, 20 to 30 hours, More than 30 hours</p> <p>9. Free response</p> <p>10. Student dormitory, Off-campus housing, Living at home with family, Other please specify</p> <p>11. Free response</p> <p>12. Free response</p> <p>13. Free response</p>	
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“Spending time in nature is important to my family.”



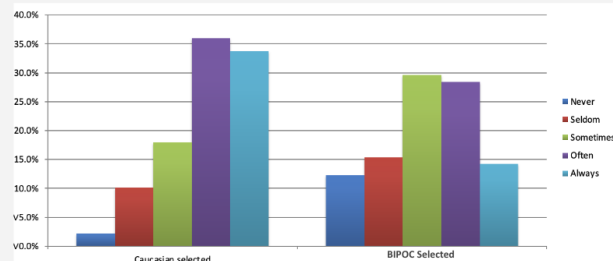
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“Environmental issues are important to my family.”



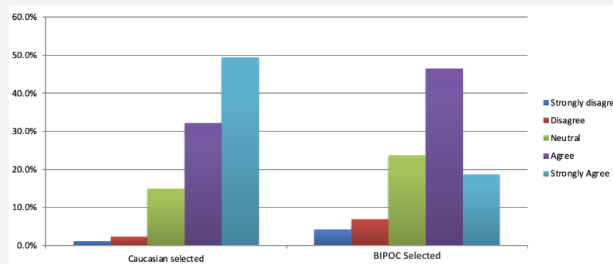
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Participation in high adventure outdoor recreation



P-value: <.00001

“I had easy access to outdoor activities I was curious about.”



P-value: <.00001

