

RESEARCH NOTE



Collaborating on a Survey Tool to Measure Urban BIPOC Youths' Perceptions of the Outdoors

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ABSTRACT

This research note describes the development of a pre-assessment survey of urban Black, Indigenous, and People of Color (BIPOC) youth participating in the Outward Bound Adventures (OBA) Environmental Studies Expeditions (ESE) program. The objective of the pre-assessment was to understand their baseline perceptions of nature and their experiences with the outdoors within their cultural context, as well as to inform the pre-and post-surveys that would be used to measure the benefits of OBA's ESE program by focusing on participants' understanding of nature, self-improvement, and the effect of having outdoor adventure experiences. The collaboration process uniquely allowed us to meaningfully improve our survey questions by using more relatable language after incorporating how lived experiences of urban BIPOC youth shape perceptions of the outdoors. Furthermore, the process helped improve our methodology by identifying an OBA staff member to personally oversee future survey administration and fully briefing all staff about the study's goals.

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Introduction

Youth from communities of color have a long history of systemic exclusion from outdoor recreation on federal, state, and county public lands (Taylor 2000). Urban Black, Indigenous, People of Color (BIPOC) youth are arguably the most impacted by social, racial, and financial barriers to participation in outdoor experiences (Thomas and Thomas 2022), as they have been consistently framed as a threat to geographic and social spaces traditionally occupied by middle and upper-middle class whites (King 2008).

In the United States, federal public lands are open to all Americans regardless of economic status, age, race, ethnicity, gender, culture, or religious viewpoints (U.S. President 2017); however, data from public and private research organizations show that those who visit public lands predominately come from higher income communities and identify as racially white; typically, they do not come from low-income urban communities of color (Flores et al. 2018; Outdoor Foundation 2022).

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Diversifying participation in and engagement with the outdoors and mainstream environmentalism is a persistent challenge (Taylor 2000). Leveraging recommendations from Thomas and Thomas (2022) that researchers need to understand how youth perceive nature to better engage with them, a pre-assessment survey was developed to address the following research question:

How can youth experiences inform and guide the development of a pre-and post-survey, prior to BIPOC youth participating in a series of hiking, camping, and backpacking trips on public lands?

The objectives of the pre-and post-surveys are to: (1) understand participants perceptions of the outdoors; (2) measure the benefits that these outdoor recreational activities provide urban BIPOC youth participants; and (3) provide quantitative value measures to refine outdoor recreation programs using a data-driven systematic approach.

In an effort to improve participation of BIPOC youths in outdoor activities, while also exposing them to potential outdoor career options, we collaborated with the outdoor adventure organization Outward Bound Adventures (OBA) to investigate urban BIPOC youth perceptions of the outdoors and their experience with nature-based recreation activities. In the following research note, we describe the initial phase of this collaboration, which commences with the development of a pre-assessment to inform and refine a pre-and post-survey instrument that will be administered to urban BIPOC youth participating in educational nature-based outdoor recreation programs organized by OBA.¹ Data from the pre-and post-trip surveys will be used in an economic valuation model to quantify the benefits to the BIPOC youth participants.

A process map of our collaborative approach is outlined in Figure 1; it illustrates at which points OBA and the research team reengage to revise and improve the pre-assessment survey and reflects connections to future evaluation steps. While previous studies in outdoor recreation have also documented researcher-practitioner collaborations (Jamal and Stronza 2009; Selin 2017; Selin and Chevez 1995; Selin, Blahna, and Cervený 2020), this research note contributes to the outdoor recreation literature by explicitly incorporating life experiences of BIPOC youth to improve programming. The collaboration process between the research team and a BIPOC-led outdoor adventure youth organization improves delivery of outdoor education programs from BIPOC instructors to BIPOC youth, while also purposefully exposing BIPOC youth participants to potential outdoor career options. The focus is on developing assessments that are culturally sensitive and have relatable language for the understanding of urban BIPOC youth with limited outdoor experience.

Background

Outdoor recreation for BIPOC youth living in urban areas is typically limited to recreation in city parks within local neighborhoods due to economic and social constraints related to poverty and disadvantaged social status (Floyd 1998; Floyd, Bocarro, and Thompson 2008; Sanders-Phillips 2000; Stodolska, Shinew, and Camarillo 2020; Tandon, Kuehne, and Olden 2018; Teixeira and Zuberi 2016). There are several well-documented barriers to BIPOC outdoor recreation participation on public lands including: knowledge of opportunities, historical racial and ethnic exclusion, fear of the outdoors,

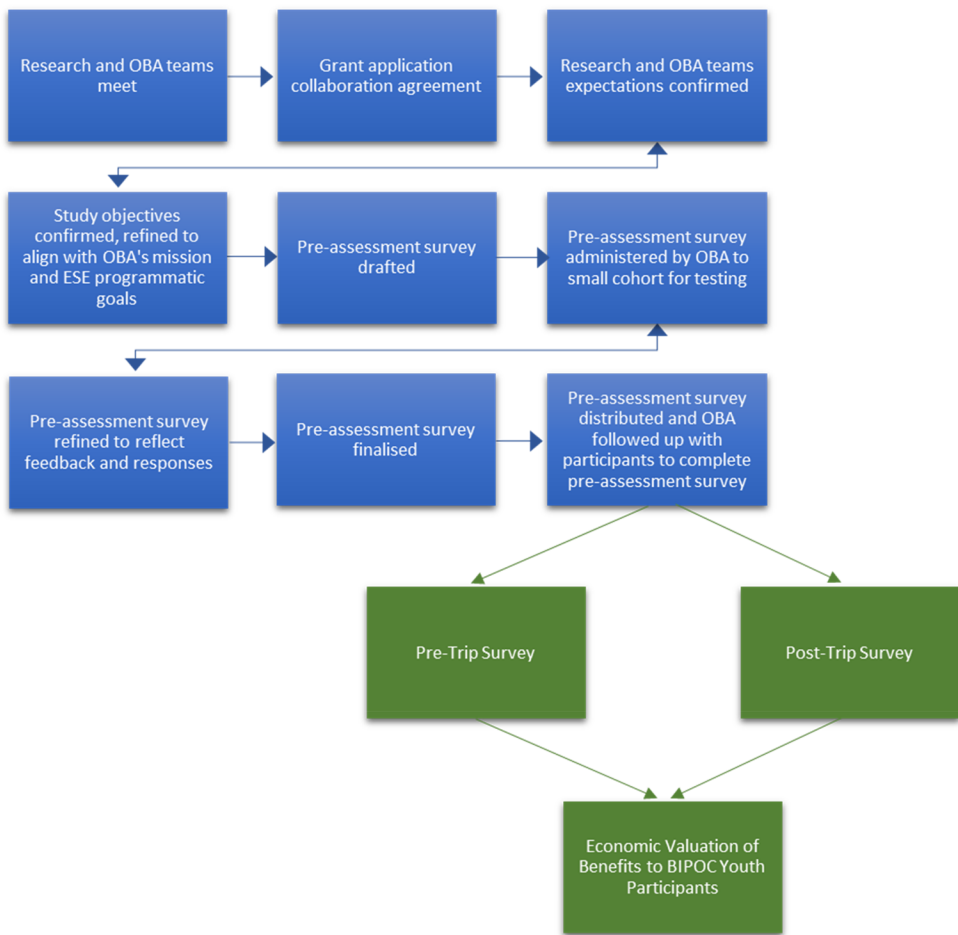


Figure 1. Process map of collaboration and pre-assessment use.

discrimination, time, money, distance, and cultural differences due to living in an urban environment that is significantly different from the experience of camping, hiking, or backpacking (Chavez 2000; Floyd 1998; Roberts and Drogin 1993; Thomas, Sánchez, and Flores 2022; Winter et al. 2019). Yet, research on outdoor recreation in urban BIPOC communities has shown the benefits of activities such as organized sports, walking, picnicking, jogging, and bicycling (Stodolska, Shinew, and Li 2010).

Research of urban youth outdoor leadership programs indicate that these programs encouraged youth to make choices that benefit the environment, enhanced personal courage, and engendered leadership skills (Roberts and Suren 2010). Recently, youth participants in outdoor programs were found to gain knowledge and responsibility of self, improved interpersonal skills, and developed a strong connection with nature amongst other benefits (Lekies, Fisher, and Hura 2023). Nevertheless, there is a paucity of studies focused on collaboration with BIPOC-led and BIPOC-focused outdoor adventure youth organizations to improve their delivery of outdoor education programs (see Flores et al. 2024; Lekies, Fisher, and Hura 2023) while also purposefully exposing at risk BIPOC youth to alternate outdoor-oriented career options.

OBA combines both educational programs and BIPOC-led outdoor adventure recreation activities for BIPOC youth across the city of Los Angeles. Its mission is “to change the lives of diverse youth through challenging outdoor learning experiences”, and its vision is to “ensure that youth from diverse communities will have access to nature, environmental education, leadership development and preparation for careers in conservation.” The “organizational purpose of OBA is to promote a diverse demographic reflective of the racial, ethnic, and collective face of America and increase diversity in outdoor recreation and environmental careers; to upgrade academic and social skills of urban youth through challenging environmental learning trips; and to promote access and opportunity to the outdoors for inner city and low-income youth” (Outward Bound Adventures 2024). OBA defines a trip to be any outdoor experience, whether a day hike or a 17-day excursion, or any outdoor experience in between these two. For the Environmental Studies Expeditions (ESE) program (which is the case used for this pre-assessment), trips are multi-day outdoor experiences that involve hiking with a backpack and camping, along with eco-literacy sessions, learning about Indigenous history and culture of the area, as well as leadership skill development. An important characteristic of these trips is to provide BIPOC role models and outdoor career options for the BIPOC youth participants.

Based on multiple engagements with OBA staff concerning expectations and programmatic goals, we developed the study research question and a pre-assessment survey² (see [Appendix 1](#)) centered on OBA’s seven areas of focus: **(1) eco-literacy, (2) cultural literacy, (3) community building, (4) physical challenge, (5) leadership development, (6) conservation careers, and (7) stewardship ethics.**³ Several survey iterations were completed to refine questions to align with these focus areas (see [Figure 1](#)).

OBA and similar organizations work to address barriers to outdoor recreation for urban BIPOC youth as well as understanding the impacts of participation in youth outdoor programs. OBA engages with BIPOC youth through educational outdoor experiences as a direct extension of their mission. In 2022, approximately 25% of OBA’s BIPOC youth participants were in the foster care system. Over 40% of BIPOC youth were involved in the juvenile or criminal justice system and over 30% identified as LGBTQIA+ youth. OBA works to create a safe and welcoming environment by having BIPOC staff (administrators and expedition leaders) who look like and come from the same communities as the youth they serve.

The intention of the ESE program is to introduce urban BIPOC youth to the outdoors on public lands and begin to build a bridge to outdoor opportunities beyond their local urban environment. The multi-day trips include several specific tasks such as: hiking into a site while carrying a backpack and wearing appropriate clothes. They also learn to: pack their backpack, cook food for the team, make a fire, set-up tents at the campsite, the history and culture of Indigenous peoples of the area, and undertake a service project. Importantly, each trip in the ESE program embodies all seven areas of focus.

The philosophy is to help participants “disconnect to reconnect,” meaning that nature provides a “blank canvas” for them to focus on their own personal development, away from the literal and figurative “noise” from their normal dense, urban, concrete environment in Los Angeles. To facilitate personal growth and reflection, each evening, participants are given time to journal to collect their thoughts and self-reflections.

The skill building motto at OBA is DEVO—Direct Engagement Vigilant Oversight—meaning that the ESE trip instructors teach participants specific skills, such as how to prep food, clean, and cook culturally-appropriate food in the outdoors, but then stand back and let the participants do the tasks themselves. Key aspects of the multi-day ESE program include: leadership skill development, empowerment, physical challenge, and intra-personal development. As a concrete example of these programmatic goals, for leadership skill development, leadership opportunities are provided to each participant, both intentionally and organically through situations that arise; for example, the trip instructors may allow a designated participant leader to lead campfire-making (if allowed) for the evening circle; during meal times, the trip instructors allow the participants to form cooking and cleaning teams themselves to allow individuals the opportunity to lead or let others lead.

Beyond simply teaching that outdoor opportunities exist, the ESE program fosters an inclusive space for BIPOC youth to develop leadership skills and empower them with environmental education to change their perspectives about accepting negative stereotypes. Indeed, youth empowerment is key to shifting the inequities that prevent urban youth from enjoying recreational experiences in the outdoors (Lawson 2018).

While OBA does not formally implement a Theory of Change model—neither a complete process nor a specified Theory of Change product—it does explicitly employ elements of a Theory of Change process. For example, the OBA team has not graphically mapped out the outcomes that they believe have to unfold to meet their long-term goals, but, through a participatory process and their own field experiences over time, they are implementing outdoor skill and leadership programs focusing on practical and proven ways to transform the lives of BIPOC youth through outdoor education programs. OBA's seven focus areas are used to develop the outdoor recreation programs, such as ESE, to provide BIPOC youth participants with personal growth and development. This approach aligned well with the research team, given one purpose of the pre-assessment was to provide insight to OBA on how they can refine their outdoor education and recreation programming.

This research note describes the development of a pre-assessment, some key highlights from the pre-assessment administered to BIPOC youth prior to participating in OBA's BIPOC-led multi-trip ESE program, and lessons learned from research and practitioner collaborations.

Methods

Figure 1 shows the collaboration process approach. First, the research team met in-person and virtually with OBA staff from 2019–2022 to apply for funding and develop this study. During the initial study phase, OBA presented their organizational and programmatic goals while also outlining their expectations. The staff's primary expectation was to use the findings to improve the ESE program and possibly additional OBA outdoor programs, while collecting quantitative metrics for future OBA grant applications. The research team's primary expectation was to value the benefits to BIPOC participants of the ESE program by implementing an accessibly worded and culturally sensitive pre-and post-survey instrument based on BIPOC youth life experiences, while also gleaned insights for how land managers can support OBA's focus

area on conservation careers. The objectives of the study were specified and agreed to by both teams; the objectives aligned with OBA's mission and the programmatic goals of the ESE program to ensure the results would be beneficial to OBA, and for the development of the research team's ongoing research.

In developing the pre-assessment, OBA and the research team specified the objective for each question to ensure that the results could be effectively used to inform the pre-and post-surveys. For instance, the questions grounded in OBA's seven areas of focus, OBA's mission, and the multi-day ESE programmatic goals, while also considering concepts from the academic outdoor recreation literature (Keith et al. 2021), at the same time not allowing the literature to bias the questionnaire. Prior to implementing the pre-assessment, a pretest was administered to a representative cohort of BIPOC youth participants and revised based on feedback from the cohort and OBA staff.

OBA is co-located at a local high school where total BIPOC enrollment is 95%, and 86% of students are identified as economically disadvantaged (John Muir High School Early College Magnet 2022). The high school also serves as a recruitment site for several OBA programs. OBA staff recruit urban BIPOC youth ages 13–18 from the local high school as well as the greater Los Angeles area to enroll in the ESE program, identifying potential participants both in terms of where they live and individual characteristics. OBA uses the following criteria to select ESE program participants: (1) access, opportunity, and knowledge of outdoor activities is low, but there is a desire to learn about the outdoors; (2) income level where at least 80% of the community lives at or below the 200% federal poverty level; and (3) racial/ethnic composition where at least 90% of participants are from underrepresented communities.

OBA trip leaders organized virtual and in-person meetings to provide participants and their guardians (many of whom have little to no experience in the outdoors) with a sense of what to expect from the ESE program. The research team also participated in the meetings, and after each meeting, OBA trip leaders sent a link to the online pre-assessment, asking all youth participants to complete the survey. Those who did not have online access completed the survey at the OBA office. The pre-assessment was administered via Qualtrics, kept intentionally short to avoid survey fatigue, and used Likert-scale questions (Never = 0, A little = 1, A moderate amount = 2, A lot = 3, or Always = 4). In agreement with OBA staff, the research team did not include demographic questions since such information was collected prior to being selected into the ESE program; all participants having similar backgrounds (e.g. low-income households, similar age, etc.).⁴ To increase participation, the research team tracked who had not completed the pre-assessment, and members of the research team as well as OBA staff followed-up to remind them to complete the pre-assessment (see Figure 1).

Results

A total of 84 participants were invited to participate in the pre-assessment and a total of 76 youth completed the entire survey, resulting in a 90% response rate. For the question “What do you consider to be the ‘outdoors?’” respondents had the option to include their own response in addition to multiple options (e.g. beach, forest, park, etc.)

that were provided in the “check all that apply” question. For this question, *forest* and *beach* had the highest responses, at 86% and 75%, respectively (see [Figure 2](#)).

[Table 1](#) shows the descriptive statistics for the variables. Respondents reported taking an average of two outdoor trips per year. About 46% of respondents reported taking at least three outdoor trips (including beach, park) per year, while 14% did not take an outdoor trip.

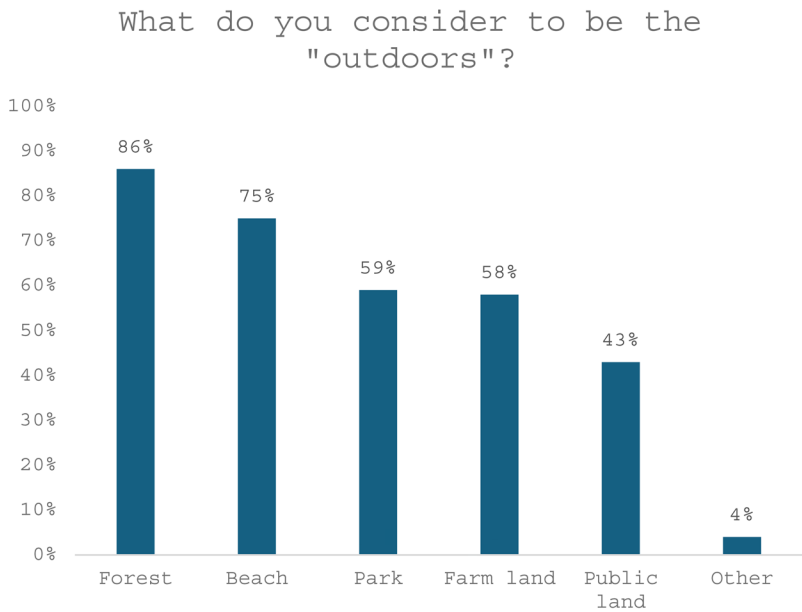


Figure 2. Responses to what is considered to be the outdoors.

Table 1. Descriptive statistics of youth participants (n = 76).

Variable	Description	Mean	Min	Max
Knowledge ¹	Knowledge of the kinds of plants and animals that live in the outdoors	1.45	0	4
History ¹	Knowledge about the history of Indigenous people	1.08	0	4
Outdoors ¹	How often you go outdoors	1.87	0	4
Role Models ¹	How often you are around positive adult role models	2.16	0	4
Group ¹	Being part of a support group	2.47	0	4
Physical Activity ¹	Do things that are physically difficult	2.03	0	4
Leader ¹	Given a chance to be a leader	1.84	0	4
Employment ²	Want an outdoors job	1.99	0	4
Minor Employees	Number of known minorities that have a career related to outdoors	0.89	0	5
Outdoors Care ¹	Knows how to take care of the outdoors	1.96	0	4
Outdoors Important ¹	Outdoors is important	3.04	1	4
Yourself ³	Handle themselves in difficult situations	2.54	0	4
Calm ³	Keeps calm when others are angry	2.64	0	4
Attitude ¹	Have a positive attitude around adults	2.71	0	4
Trips	Number of outdoor trips in a year	2.01	0	5

Note: ¹Likert-scale (None at all or Never = 0, A little = 1, A moderate amount = 2, A lot = 3, and A great deal or Always = 4); ²Likert-scale (No = 0, Probably no = 1, Maybe = 2, Probably yes = 3, Yes = 4); ³Likert-scale (Not very well = 0, Generally not well = 1, Sometimes well, sometimes not = 2, Generally well = 3, Very well = 4).

These pre-assessment results were then used to develop a pre-and post-survey to value the benefits BIPOC youth participants felt they had gained from the multi-day ESE program.

Lessons Learned

The collaboration process between research scientists and OBA outlined above revealed several important lessons through the process outlined in [Figure 1](#). In terms of overall research strategy, we improved survey questions by developing more accessible language, culturally-appropriate framing, and survey implementation was improved by ensuring an OBA staff member was directly responsible for survey implementation, and that outdoor leaders knew the programmatic purpose of the survey. Finally, the research team is continuously learning how to adapt theoretical frameworks to the life experiences of urban BIPOC youth as they continue to participate in nature-based programming, and adjustments post-COVID.

Discussion

The pre-assessment was developed to understand baseline perceptions held by urban BIPOC youth with respect to nature within their cultural context and their experience with exploring nature to that point (Thomas and Thomas 2022). The objective of the pre-assessment was to inform the pre-and post-surveys that would be used to measure the benefits of OBA's ESE program.

In this pre-assessment, we tested assumptions and language in outdoor recreation literature and programming. For example, researchers and OBA staff were surprised by findings from the question "What do you consider to be the 'outdoors'?" Based on the outdoor recreation literature and normative assumptions in the outdoor industry, the outdoors is considered to be an open green space with mountainous and/or prairie landscapes (Flores et al. 2018; Outdoor Foundation 2022; Taylor 2000). Yet, several participants included "the beach" in their understanding of the "outdoors," perhaps due to easier urban access to the southern California coastline; two participants volunteered even broader definitions, stating respectively, that the outdoors is "anywhere outside of my room" and "outside of a room with four walls." Thus, how urban youth define the outdoors impacts responses to follow-up survey questions such as "How often do you go outdoors?" The research team had to rethink survey questions and their use of terms such as "the outdoors"; the team worked closely with OBA staff to revise the future pre-and post-surveys with more precise and relatable language to urban BIPOC youth (Stodolska et al. 2013) living in Los Angeles. To help identify participants' positive role models, a question was added to include who is their positive role model, such as guardian/parent or school (teacher, coach, counselor). Other questions were added for participants to provide specific examples, such as how they take care of the mountains/forests (Lawson 2018; Lekies et al. 2023). These additional questions may help better identify specific factors that motivate BIPOC youth to be in the outdoors.

Collaborating with OBA staff to refine survey questions was invaluable in creating questions grounded in the everyday life experiences of urban BIPOC youth

participants. In this paper, we describe our collaboration process with OBA, present findings from a pre-assessment, and explain how this process highlighted survey development assumptions that are rooted in outdoor recreation literature. Next steps include administration of pre-and post-surveys for each educational outdoor trip to better understand urban BIPOC youth outdoor experiences (Keith et al. 2021), ecological knowledge (Roberts and Drogin 1993), how they connect to nature (Stodolska, Shinew, and Li 2010), and other factors that will help improve and support their access to outdoor recreation on public lands. Findings from this research note suggest that testing assumptions (e.g. language) for BIPOC youth is important to obtain valid responses and that collaboration is key to improving study methodologies and delivery of actionable results.

Notes

1. For more information on Outward Bound Adventures (OBA) visit: <http://www.obainc.org>.
2. UC Davis Institutional Review Board reviewed and approved the survey on November 7, 2022.
3. The focus areas were developed by OBA prior to our collaboration. Due to the word limit constraint, readers are referred to OBA's website (<https://www.obainc.org/>) for definition of each of the focus areas.
4. Demographic data will be collected in future pre- and post-trip surveys for the economic valuation model.

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Disclaimer

The findings and conclusions in this report are those of the authors and should not be construed to represent any official USDA or U.S. Government determination or policy.

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References

- Chavez, D. J. 2000. Invite, include, and involve!: Racial groups, ethnic groups, and leisure. In *Diversity and the recreation profession: Organizational perspectives*, 179–91. State College, PA: Venture Publishing. https://www.fs.usda.gov/psw/publications/chavez/psw_2000_chavez005.pdf.
- Flores, D., G. Falco, N. S. Roberts, and F. Valenzuela. 2018. Recreation equity: Is the forest service serving its diverse publics? *Journal of Forestry* 116 (3):266–72. doi: 10.1093/jofore/fvx016.

- Flores, D., J. J. Sanchez, E. Schlickman, L. Strivastava, M. V. Arias, J. Cui, A. Davila, and J. Cortez-Solis. 2024. Minding the science-practice gap to reach the goals of sustainable recreation research. *Journal of Park and Recreation Administration* 42 (3):99–104. doi: [10.18666/JPra-2024-12248](https://doi.org/10.18666/JPra-2024-12248).
- Floyd, M. F. 1998. Getting beyond marginality and ethnicity: The challenge for race and ethnic studies in leisure research. *Journal of Leisure Research* 30 (1):3–22. doi: [10.1080/00222216.1998.11949816](https://doi.org/10.1080/00222216.1998.11949816).
- Floyd, M. F., J. N. Bocarro, and T. D. Thompson. 2008. Research on race and ethnicity in leisure studies: A review of five major journals. *Journal of Leisure Research* 40 (1):1–22. doi: [10.1080/00222216.2008.11950130](https://doi.org/10.1080/00222216.2008.11950130).
- Jamal, T., and A. Stronza. 2009. Collaboration theory and tourism practice in protected areas: stakeholders, structuring, and sustainability. *Journal of Sustainable Tourism* 17 (2):169–89. doi: [10.1080/09669580802495741](https://doi.org/10.1080/09669580802495741).
- John Muir High School Early College Magnet. 2022. School profile, 2022–2023. About us—School profile. https://drive.google.com/file/d/1z34cZDv6nK514Y9iyDkmrkYNbRnXevC8/view?usp=sharing&usp=embed_facebook
- Keith, R. J., L. M. Given, J. M. Martin, and D. F. Hochuli. 2021. Urban children's connections to nature and environmental behaviors differ with age and gender. *PLoS One* 16 (7):e0255421. doi: [10.1371/journal.pone.0255421](https://doi.org/10.1371/journal.pone.0255421).
- King, R. S. 2008. Disparity by geography: The war on drugs in America's cities. The Sentencing Project. <https://www.jstor.org/stable/resrep27211>
- Lawson, N. L. 2018. *Doorway to wonder: Charting new environmental education and place-making pathways in Urban Los Angeles*. University of California, Los Angeles. Ann Arbor, MI: ProQuest LLC. <https://escholarship.org/uc/item/5hg118sp>
- Lekies, K., K. Fisher, and V. Hura. 2023. *Growth through adventure: Examining the long-term impacts of participation in the youth outdoors programs*. Columbus, OH: The Ohio State University; College of Food, Agriculture, and Environmental Sciences; School of Environment and Natural Resources.
- Outdoor Foundation. 2022. *2022 Outdoor participation trends report*. Outdoor Foundation. <https://outdoorindustry.org/wp-content/uploads/2023/03/2022-Outdoor-Participation-Trends-Report.pdf>
- Outward Bound Adventures. 2024. *May 2024 field instructor manual*.
- Roberts, N. S., and E. B. Drogin. 1993. The outdoor recreation experience: Factors affecting participation of African American women. *Journal of Experiential Education* 16 (1):14–8. doi: [10.1177/105382599301600102](https://doi.org/10.1177/105382599301600102).
- Roberts, N. S., and A. T. Suren. 2010. Through the eyes of youth: A qualitative evaluation of outdoor leadership programs. *Journal of Park and Recreation Administration* 28 (4):59–80.
- Sanders-Phillips, K. 2000. Health promotion in ethnic minority families: The impact of exposure to violence. In *Promoting human wellness: New frontiers for research, practice, and policy*, 294–324. Berkeley and Los Angeles, CA: University of California Press. <http://ark.cdlib.org/ark:/13030/kt4r29q2tg/>.
- Selin, S. 2017. Operationalizing sustainable recreation across the National Forest System: a qualitative content analysis of six regional strategies. *Journal of Park and Recreation Administration* 35 (3):35–47. doi: [10.18666/JPra-2017-V35-I3-8020](https://doi.org/10.18666/JPra-2017-V35-I3-8020).
- Selin, S., D. J. Blahna, and L. K. Cervený. 2020. How can collaboration contribute to sustainable recreation management. In *Igniting Research for Outdoor Recreation: linking Science, Policy, and Action*. Gen. Tech. Rep. PNW-GTR-987, 203–11. Portland, OR: US Department of Agriculture, Forest Service, Pacific Northwest Research Station.
- Selin, S., and D. Chevez. 1995. Developing a collaborative model for environmental planning and management. *Environmental Management* 19 (2):189–95. doi: [10.1007/BF02471990](https://doi.org/10.1007/BF02471990).
- Stodolska, M., K. J. Shinew, J. C. Acevedo, and C. G. Roman. 2013. “I was born in the hood”: fear of crime, outdoor recreation and physical activity among Mexican-American urban adolescents. *Leisure Sciences* 35 (1):1–15. doi: [10.1080/01490400.2013.739867](https://doi.org/10.1080/01490400.2013.739867).
- Stodolska, M., K. J. Shinew, and L. N. Camarillo. 2020. Constraints on recreation among people of color: Toward a new constraints model. *Leisure Sciences* 42 (5-6):533–51. doi: [10.1080/01490400.2018.1519473](https://doi.org/10.1080/01490400.2018.1519473).

- Stodolska, M., K. J. Shinew, and M. Z. Li. 2010. Recreation participation patterns and physical activity among Latino visitors to three urban outdoor recreation environments. *Journal of Park and Recreation Administration* 28 (2):36–56.
- Tandon, P., L. Kuehne, and J. Olden. 2018. Trends and knowledge gaps in the study of nature-based participation by Latinos in the United States. *International Journal of Environmental Research and Public Health* 15 (6):1287. doi: [10.3390/ijerph15061287](https://doi.org/10.3390/ijerph15061287).
- Taylor, D. E. 2000. Meeting the challenge of wild land recreation management: demographic shifts and social inequality. *Journal of Leisure Research* 32 (1):171–9. doi: [10.1080/00222216.2000.11949910](https://doi.org/10.1080/00222216.2000.11949910).
- Teixeira, S., and A. Zuberi. 2016. Mapping the racial inequality in place: Using youth perceptions to identify unequal exposure to neighborhood environmental hazards. *International Journal of Environmental Research and Public Health* 13 (9):844. doi: [10.3390/ijerph13090844](https://doi.org/10.3390/ijerph13090844).
- Thomas, A., J. J. Sánchez, and D. Flores. 2022. A review of trends and knowledge gaps in Latinx outdoor recreation on federal and state public lands. *Journal of Park and Recreation Administration* 40 (1):24–43. doi: [10.18666/JPRA-2021-11064](https://doi.org/10.18666/JPRA-2021-11064).
- Thomas, M. O., and C. H. Thomas. 2022. From urban places to outdoor spaces: Field-tested practices for engaging BIPOC youth and diversifying outdoor recreation. *Frontiers in Communication* 6:736252. doi: [10.3389/fcomm.2021.736252](https://doi.org/10.3389/fcomm.2021.736252).
- U.S. President. 2017. DCPD-201700021—Memorandum on promoting diversity and inclusion in our national parks, national forests, and other public lands and waters, January 12, 2017. *Federal Register* 82 (12):6179–84. <https://obamawhitehouse.archives.gov/the-press-office/2017/01/12/presidential-memorandum-promoting-diversity-and-inclusion-our-national>.
- Winter, P. L., W. D. Crano, T. Basáñez, and C. S. Lamb. 2019. Equity in access to outdoor recreation—Informing a sustainable future. *Sustainability* 12 (1):124. doi: [10.3390/su12010124](https://doi.org/10.3390/su12010124).

Appendix 1

Pre-Assessment

Name: _____

1. What do you consider to be the “outdoors”? (*select all that apply*)
 - a. Beach
 - b. Park
 - c. Forest
 - d. Public land
 - e. Farm land
 - f. Other: _____

2. How much do you know about the kinds of plants and animals that live in the outdoors? (*select one*)
 - a. None at all
 - b. A little
 - c. A moderate amount
 - d. A lot
 - e. A great deal

3. How much do you know about the history of indigenous people who lived in California before the 1800s? (*select one*)
 - a. None at all
 - b. A little
 - c. A moderate amount
 - d. A lot
 - e. A great deal
4. How often do you go outdoors (forests, open spaces and public lands)? (*select one*)
 - a. None at all
 - b. A little
 - c. A moderate amount
 - d. A lot
 - e. A great deal
5. How often are you around adults that you look up to as positive role models? (*select one*)
 - a. Never
 - b. A little
 - c. A moderate amount
 - d. A lot
 - e. Always
6. How often do you feel like you're part of a group of people that support you? (*select one*)
 - a. Never
 - b. A little
 - c. A moderate amount
 - d. A lot
 - e. Always
7. How often do you do things that are physically difficult? (*select one*)
 - a. Never
 - b. A little
 - c. A moderate amount
 - d. A lot
 - e. Always
8. How often are you given a chance to be a leader? (*select one*)
 - a. Never
 - b. A little
 - c. A moderate amount
 - d. A lot
 - e. Always

9. Do you believe that one day you might want a job related to the outdoors? (*select one*)
- a. No
 - b. Probably no
 - c. Maybe
 - d. Probably yes
 - e. Yes
10. How many BIPOC and/or LGBTQIA adults do you know have a career related to the outdoors? (*select one*)
- a. 0
 - b. 1-2
 - c. 3-5
 - d. 5+
11. How much do you know about how to take care of the outdoors? (*select one*)
- a. None at all
 - b. A little
 - c. A moderate amount
 - d. A lot
 - e. A great deal
12. How much do you feel like the outdoors are important? (*select one*)
- a. Never
 - b. A little
 - c. A moderate amount
 - d. A lot
 - e. Always
13. When situations get difficult, how well do you believe you handle yourself? (*select one*)
- a. Not very well
 - b. Generally not well
 - c. Sometimes well, sometimes not
 - d. Generally well
 - e. Very well
14. How good do you think you are at keeping yourself calm when others are angry? (*select one*)
- a. Not very good
 - b. Generally not good
 - c. Sometimes good, sometimes not
 - d. Generally good
 - e. Very good

15. How often do you have a positive attitude around adults? (*select one*)
- a. Never
 - b. A little
 - c. A moderate amount
 - d. A lot
 - e. Always
16. How many times a year do you go on trips to the outdoors? (*select one*)
- a. 0
 - b. 1-2
 - c. 3-5
 - d. 5+