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Writing Counterstories in Environmental Education

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Abstract

College educators have a unique opportunity to invite students to make connections between students' cultural identities and their relationship with the natural world through reflective writing. This essay presents a writing-to-learn assignment used in an undergraduate environmental leadership course. This low-stakes assignment asks students to share a story or cultural practice from their ancestors that connects to nature. Responses from this assignment reflect the environmental expertise students have gained through their lived experience and cultural knowledge, which are not often recognized in academic spaces. Sharing this knowledge allows students, especially those with marginalized identities, to create counterstories that affirm the validity of their lived expertise and cultural knowledge. By inviting and validating students' counterstories through course assignments and discussions, educators may contribute to broadening interest, participation, and leadership from diverse students in environmental fields.

Cultural Exclusion in Environmentalism

American environmentalism has been historically shaped by Western and colonial ideologies that frame the environment primarily through the lenses of conservation, recreation, and science (Taylor, 2016). This narrow conception marginalizes other ways of knowing and understanding the natural world, such as those rooted in spirituality, family traditions, food practices, medicine, oral histories, songs, and language (Huaman & Swentzell, 2021). As a result, students with culturally-based environmental knowledge are not often recognized as possessing legitimate environmental expertise in academic programs (Gondwe & Longnecker, 2015). Consequently, they may not identify as "environmentalists" or view their familial and cultural relationships with nature as relevant to academic learning. These factors may suppress interest and engagement with environmental courses and career paths (Jackson et al., 2016).

Cultural exclusion negatively impacts the participation of students with marginalized identities in environmental degree programs (Espinosa, 2011; McGee, 2016; Taylor, 2018), as well as environmental organizations' ability to recruit and retain talent (Johnson, 2019; Marin-Spiotta et al., 2023). Black, Indigenous and other people of color (BIPOC) are significantly underrepresented in U.S. environmental government agencies, nonprofits, and foundations (Green 2.0, 2025), indicating the overrepresentation of white, privileged perspectives in environmental decision-making. Meanwhile, the burdens of polluting industries, extreme weather events, and climate change are systematically placed on poor communities and communities of color (Bullard, 2018). Lived experience with the impacts of environmental injustice lends uniquely valuable knowledge to address continuing harm to nature and communities (Ceaser, 2015). Additionally, Indigenous communities carry ancestral knowledge related to living in reciprocal relationship with nature (Hosen et al., 2020). College instructors can invite and validate students' cultural knowledge and lived experiences as valuable qualifications for the roles of environmental learner and leader. This validation, in tandem with broader necessary cultural shifts in higher education and environmental workplaces, contributes to broadening perspectives for more informed environmental decision-making (e.g., Torregroza-Espinosa et al., 2025).

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Individuals of all cultural backgrounds have ancestors within several prior generations whose practices connected them to the natural world where they lived. Examples include nature-based stories, crafts, seasonal rituals, language, place names, clothing, food traditions, and health practices. Students have the opportunity to learn from their ancestral practices and knowledge and reflect on how ancestral wisdom can inform modern solutions. The assignment described in this essay invites students to use reflective writing to share environmental expertise in their cultural lineages. Ultimately, this assignment aims to achieve three goals: connecting students' existing cultural knowledge to the academic course context, validating cultural knowledge as professional expertise, and contributing to students' identity formation as environmental learners and leaders.

Theoretical Foundations

Gonzalez et al. (2005) define *funds of knowledge* as the skills, experiences, and knowledge students bring to the classroom from family or personal life experience. Employing a funds of knowledge framework in college courses validates the expertise and experience students bring to the classroom, and facilitates deeper meaning-making as students contextualize their experiences within course-based learning (Kiyama & Rios-Aguilar, 2017). Inviting students to contribute their funds of knowledge through assignments can improve the depth of course content, encourage students to value their individual and collective expertise, and motivate students to identify shared experiences, leading towards systems-level understanding (Denton & Borrego, 2021).

By reflecting on and sharing their funds of knowledge with others, students center their own ways of knowing and set a foundation for writing their own counterstories. Counterstories (Solórzano & Yosso, 2002) allow students with marginalized identities to define themselves and their families contrary to negative dominant narratives associated with their cultural group. In the context of widespread environmental destruction and climate change, counterstories also allow young adults to position themselves as effective changemakers in contrast to dominant narratives of environmental hopelessness (e.g., Stewart et al., 2024; Trott, 2025). Because identities are socially negotiated (Gee, 2000–2001), counterstories are most effective when they are shared and affirmed by others with both similar and different identities (Contrino, 2025).

Writing-to-learn (WTL) assignments use writing as a tool for processing, understanding, critically examining, reflecting, making connections, and playing (Bazerman et al., 2005; Kiefer et al., 2000–2021). Personal reflection is one type of WTL that asks students to reflect on prior experience and transfer learning between non-academic and academic contexts (Bunnell et al., 2023; Lew & Schmidt, 2011). Prior research suggests WTL activities support students to develop a sense of belonging and connect their cultural backgrounds to academic learning (Balgopal et al., 2018; Venegas et al., 2017, March 15–18). In the assignment discussed here, students use writing to reflect on and share elements of their environmental knowledge that may not have been previously recognized. In tandem with other scaffolded activities, this sharing and validation of knowledge also supports students' professional identity development (Adams et al., 2020; Tracey & Hutchinson, 2018).

Assignment Context

The Earth Grant program at University of Arizona supports and prepares diverse undergraduate students interested in pursuing careers in environmental and community resilience (Arizona Institute for Resilience, 2025). University of Arizona is a Hispanic-Serving Institution situated less than 100 miles from the Mexican border. The majority of students who participate in the Earth Grant program are students of color, with Latine/Hispanic students most represented.

This majority representation of BIPOC students contributes to an identity-affirming context for these students to revise damage-centered narratives (Tuck, 2009) about themselves, their families, or their places of origin.

Undergraduates of any year and major may apply to participate in Earth Grant. For one full academic year, student participants are individually matched with a paid internship in their area of career interest. Students also meet weekly as a cohort to participate in field trips, guest talks, and peer discussions. These meetings are structured as a series of two courses (fall and spring) for academic credit and include weekly out-of-class assignments. Authentic professional identity, cultural knowledge, and public storytelling are key leadership strategies introduced at the start of the program and practiced via multiple activities and assignments throughout the year (Davis et al., 2025). In this assignment, students are asked to write a discussion post about a cultural practice, family story, or story from their cultural lineage that connects to the Earth.

In the spirit of WTL, this is a low-stakes assignment with no right or wrong answers. As with all discussion posts in this course, it is submitted through the course's learning management platform and graded on a simple rubric: did not submit (0 points); incomplete submission of three sentences or less (1 point); or complete submission (2 points). Students are encouraged to read and comment on others' posts they connect with. Additionally, students have time to share and discuss responses in small groups at the following in-person class meeting. In this way, students not only develop their own counterstories but also a broader multicultural counterstory of knowledge and relationships with the natural world.

Student Responses and Common Themes

Students have shared an immense wealth of cultural knowledge, family and ancestral histories, and lived experiences through this assignment. Past student submissions include a recipe for their grandmother's *birria*, childhood experiences with grandparent-farmers in rural Asia, and a Mexican folktale featuring mountains as main characters.

One common theme in student responses are remedies or health practices rooted in ancestral lineages. In the excerpt below, a student shared practices from the Ecuadorian side of his family and reflects on the loss of these practices with his generation:

Tobacco smoke as mosquito repellent: With the tropical climate near the Equator (which the country is named after), there are a lot of mosquitos, so they often burned tobacco leaves in a fire pit and use the smoke to get rid of the mosquitos.

Poultice with cacao: When someone had a congested chest, my great grandmother made a poultice with cacao beans, heated with warm water and wrapped in a cloth to place on the chest, which alleviated the congestion.

Sickness remedy for flu: Whenever someone got the flu, they had to drink a warm beverage made from milk, garlic, and onions (it tastes awful, but it gets the job done!)

I find all of these interesting because I personally never grew up with them but my mother experienced them firsthand and it shows a way that immigration can lead to losing some of the connections between community and practices, especially in relation to place as a lot of these practices rely on resources that are not as easily accessible in the U.S. I'm glad I'm able to learn about these and somewhat reconnect with my cultural practices. -Sophomore, Spring 2023

The value of Indigenous ways of knowing and Traditional Ecological Knowledge are increasingly recognized by environmental educators (Burns, 2015; Nesterova, 2020), environmental management agencies (White House Office of Science and Technology Policy and White House

Council on Environmental Quality, 2022), and STEM fields generally (Gazing Wolf et al., 2024; Snively & Corsiglia, 2001). Sharing Indigenous practices allows for more expansive thinking and visioning about environmental solutions (Diamond, 2019). At the same time, contextualizing the loss of Indigenous knowledge within larger economic and political systems carries important lessons about the root causes of environmental problems (Crook et al., 2018; Nishime & Williams, 2018; Tuck et al., 2014).

Another common theme in student responses is personal experience with nature-based practices, often using descriptive or sensory language. This is illustrated in the following excerpt:

We have a small family ranch [in Mexico] where my grandparents have cattle. We sometimes farm and work the land, and the ranch is right on the edge of the lake so sometimes we fish when it's the season. So that's the practice that connects us with nature. We don't do anything large scale commercial or stuff where we have to bring big machines and take down trees to be able to farm or anything like that. It's smaller scale. My grandparents do use it for money, for example the cheese that we make from the milking cows or the fish that we sell as income for their livelihood, but it is mostly for our family, enjoyment, and to eat. Ever since I was about nine years old, I've been going down there every summer and spending one or two months out there at the ranch working with my grandfather, doing all sorts of farm stuff. I did that until the summer of my sophomore year when my grandfather passed away... I always remember how relaxed and comfortable I felt when I was out there, even though it was hard work most days. You're always feeling relaxed. It was a great experience, and I always try to look back and remember - especially now with college and all the stress, when it's just a little too much - to remember the feeling of being out there. -Senior, Spring 2022

This student contrasts the relaxed feeling of living with the land with their urban lifestyle while in college. Describing this past experience of wellbeing provides evidence and inspiration for designing structures and systems that support both people and nature. This reflection also touches on the student's sense of loss in no longer visiting this place and experiencing this feeling. Both excerpts shared above touch on the theme of loss of ancestral land and cultural knowledge. Many students have shared stories related to retaining cultural knowledge despite migration, such as a grandparent who continued successfully growing heirloom fruit trees from central Mexico after moving to the southwestern U.S. However, many students have also shared stories of their grandparents or great-grandparents having to leave their homelands and land-based practices due to economic or political factors, reflecting global trends of increasing land degradation and migration towards cities.

Sharing experiences of loss, where loss may be collectivized (Nairn, 2019), can promote healing, systemic understanding, and the ability to reclaim these experiences as counterstories (Gislason et al., 2018; González-Hidalgo et al., 2022). Mohawk seedkeeper Rowan White describes a widespread modern suffering due to displacement and disconnection from ancestral land and lifeways, stating, "This [cultural] insanity is born from an accumulation of people not being able to grieve their sense of disconnection from place and ancestry" (Hemphill, 2021). In addition to the assignment goals previously stated, exploring and sharing ancestral connections to the Earth provides a supportive space for students to both grieve this collective loss and disconnection, and to value where ancestral knowledge has been retained.

Implementing the Assignment

In the Earth Grant curriculum, this discussion post is one of several assignments that aim to build students' identities as environmental leaders and learners. In other assignments, students

develop and share a public “story of self” (Ganz et al., 2023) communicating an issue they care about and why, draft a story for future job interviews communicating how they demonstrated a professional competency, and develop their authentic professional identity with LinkedIn profiles. Although our curriculum does not build specifically from this discussion post after peer discussion, instructors could build subsequent related writing assignments into a course. For example, students could develop a reflective essay about personal environmental identity development, expanding on the ideas from the original discussion post.

This assignment is often preceded by sharing examples of other personal or family stories related to the environment. One of these is the introductory chapter of *Fresh Banana Leaves* (Hernandez, 2022), which tells a family story about the author’s father’s close relationship with banana trees. Another is Carolyn Finney’s personal story about growing up as a Black American in a family with strong environmental values and confronting racist real estate practices, which inspired her career in environmental justice (Finney, 2019). Both of these are examples of counterstories, where a difficult family experience has been reclaimed by the storyteller as a story of learning, connection, and growth. As the instructor, I have also offered an example of a story from my own family, related to my great grandparents’ immigration from France to the U.S., and my great grandmother’s famous *choucroute*, or cabbage sauerkraut, which she continued making in enormous barrels at their new home in rural Oklahoma and that I make at home now in a ceramic crock. This assignment is endlessly flexible, and any other materials describing examples of nature-based cultural practices may be offered as preparation.

This assignment works best after students have begun to build relationships and a basic level of trust with each other through prior interactions. Following the assignment, peer discussion may be structured in a variety of ways. For an online course, students could be assigned to respond to a certain number of peer posts, with the guidance to either describe something they learned or found interesting, or connect something from the post to their own cultural or ancestral knowledge. For an in-person course, peer discussion works best in smaller groups of two to four, with each student having space to share their story or knowledge and hear from others on what they are learning or connecting, using the same guiding questions as stated above. Students may self-select or be randomly assigned to groups, or the instructor may determine groups based on common themes in discussion posts. In my teaching experience, providing a comfortable setting can remove some of the difficulty of personal sharing. For example, if the weather allows, peer discussion groups are encouraged to take their conversations into our building’s tree-filled courtyard.

It can be expected that some students, for completely valid reasons, may not connect with this assignment or may reject the encouragement to explore their ancestral knowledge. Students who do not feel connected to their cultural lineage, or who may not have relationships with biological family, may find it harder to approach the prompt as originally framed. Building some flexibility into the assignment parameters can make the assignment accessible for students of all backgrounds. For example, the definition of family may be broadened to include anyone involved in a student’s upbringing, including caregivers, mentors, neighbors, or members of the community in which the student was raised. Alternatively, students may reflect on practices from their early experiences, such as seasonal foods or traditions, that connected them to the place where they lived.

This assignment is a valuable tool for environmental identity development in environment-related STEM courses. However, as these courses privilege Western scientific knowledge by nature of their discipline, it may be helpful to precede assignments like these with examples where Indigenous knowledge has informed Western science or modern environmental management (Jessen et al., 2022; Kimmerer, 2015; Orlove et al., 2002). Continuing to value cultural or

Indigenous knowledge through intentional selection of materials, authors, and assignments throughout the course can reinforce learning, sense of belonging, and identity development. Complementary instructor practices such as providing genuine validating feedback, creating space for supportive peer connections, and continuing to demonstrate respect for students' funds of knowledge throughout the course are critical to ensure students feel valued rather than tokenized for their contributions. The positive impact of this assignment relies on consistent inclusive and identity-affirming pedagogy throughout the course. Ample research has demonstrated the value of inclusive teaching practices, both to improve student outcomes (Dewsbury et al., 2022) and increase enrollment of students of color (Garibay & Vincent, 2018).

Beyond STEM classrooms, a growing number of scholars describe the value of integrating environmental and ethnic studies learning (Patterson, 2015; Pellow, 2020). This assignment is equally applicable in the fields of Mexican American Studies, Latin American Studies, African American Studies, and others. In these course contexts, students may recognize the connections between their cultural heritage and their ancestors' land and ecologies. Because migration, cultural knowledge loss, and displacement are commonly observed themes in student responses, this assignment may be applicable in curriculum related to these topics. In history and social sciences courses, this assignment could precede learning about American settler colonialism, with students likely being able to locate their family history within the broader migration histories of the U.S.

Conclusion

By inviting students to share ancestral practices and stories that connect them to nature, this writing assignment validates diverse forms of environmental knowledge, mitigates social and cultural exclusion in environmental education, and invites students to perceive the environmental expertise inherent in their family histories and cultures. In this way, students are writing to learn about the environment, their ancestral knowledge, and their professional identities, while discovering the inherent connections between all three. This allows students with marginalized identities to develop powerful counterstories, which they may use to overcome social and cultural barriers and authenticate themselves as environmental learners and leaders.

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ASSIGNMENT

Cultural Practice Discussion Post

This assignment is an invitation to connect with and share how connection with the Earth is part of your DNA. **Choose one** of these two options and respond in 1-2 paragraphs:

1. What is a practice of your ancestors (grandparents, great-grandparents, or further back) that connected them to the Earth, nature, or the land where they lived? (If you are able to talk to a living ancestor, you can ask them!) It could be related to food, language, music, spirituality, transportation, clothing, etc. How do you, or could you, continue that practice now, in a way that's appropriate for

- the place where you currently live?
2. What is a story from your ancestors (grandparents, great-grandparents, or further back) that connected them to the Earth, nature, or the land where they lived? This could be a true story from your family history, or a spiritual story or folktale from a cultural group you are a member of.

Supplementary Material

For supplementary material accompanying this paper, including a PDF facsimile of the assignment description formatted as the author(s) presented it to students, please visit <https://doi.org/10.31719/pjaw.v10i2.279>.

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