

Websites as Gateways to Inclusive Partnerships: Examining Diversity Representation for Environmental Nonprofits and Engineering Programs in Buffalo, New York

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Abstract

This research paper, targeting ECSJ-DEED joint session, aims to explore the importance of diversity representation on environmental nonprofit websites, particularly in Buffalo, New York. Assessing these websites is crucial when seeking potential partners for engineering programs and community collaborations. By rigorously evaluating websites, we establish a foundation for informed partnerships that enhance engineering students' educational experiences. Websites serve as a vital medium for organizations to convey their values and goals. Meaningful collaboration between engineers and community partners can empower students, but superficial engagements may undermine their transformative potential. This research uses signaling theory and the Fitzpatrick Skin Type Scale to assess whether local diversity is reflected on websites and underscores the importance of diversity representation for credibility in environmental advocacy, offering a valuable approach for educators seeking authentic community partnerships.

Key words: Diversity, representation, community partnerships

Introduction

Across many fields of education, leveraging organizational websites proves instrumental in cultivating connections and diversifying partnerships for faculty and students. Establishing an online presence not only enhances visibility but also serves as a crucial avenue for potential collaborators to understand an organization's mission and purpose, and the ways they choose to represent their organizational culture. This is particularly important as engineering educators seek to identify and recruit community partners and organizations to collaborate with their engineering students. Drawing from signaling theory, research indicates that people interpret cues from website design features and provided information, such as mission, values, and goals, as expressive of organizational culture. While these representations can be manufactured (i.e., the images included might emphasize people of color (PoC) when the organization is predominately white), prospective partners turn to an organization's website as a primary source for information, which shapes their perceptions and evaluations of the organization.

Our study focuses on our shared desire to decode and analyze messages conveyed by environmental organizations in Buffalo, New York, a city that stands as the third poorest and seventh most segregated in the U.S., where systemic inequities disproportionately impact PoC and those with limited resources [1]. By examining their websites, we aim to understand how (and whether) these organizations present themselves as justice-oriented and inclusive. Research on how prospective employees learn about a company's culture and values uses signaling theory [2] to suggest that website users will interpret cues from any available information to shape their opinions. Building on this work, our study extrapolates that engineering educators, seeking partners for collaboration, may evaluate an organization's commitment to inclusivity through website features such as diverse graphics and inclusive site text, including staff pronouns.

Navigating environmental organization websites to initiate connections can be a crucial starting point; however, it is essential to recognize and understand their limitations. For example, the organization may use commercial stock photos, which can illustrate diversity, but not reflect the actual diversity within the organization. For instance, what is presented on the website may not align with actual organizational culture or actions. This is important because as the field of engineering diversifies, cohorts will be looking for community partners to engage with that reflect that same diversity. Research suggests that engineering students of color and female engineering students experience high levels of stress around their perceptions of inclusion in their engineering programs and in the field itself [3], [4]. While there are limitations to this approach, certain concrete facts like whether staff pronouns are included in online bios or the number of PoC on the organization's board of directors may help local engineering students and faculty discern levels of inclusion in potential community partners.

Signaling Theory as a Framework

Signaling shapes the perceptions an individual has about an organization, which thereby influence a person's perceived fit within the organization. According to Spence's [5] theory of job market signaling, prospective employees gather limited available information to form opinions about an organization. In our contemporary world, this information is mainly sought and accessed from an organization's website.

Signaling theory suggests that potential applicants interpret website elements and features as indicators of the organization's values and work environment. For instance, if diversity is prominently featured on the website, jobseekers may perceive it as a highly valued aspect within the organization [6], which can influence the demographics of the applicant pool an organization attracts. Signaling theory emphasizes the importance of both the medium and content of organizational-based information in influencing both applicant attraction and an applicant's decision to pursue employment. Studies by Allen and colleagues [7] and Rynes and colleagues [8] support the notion that the organizational culture portrayed on a website significantly shapes applicant attitudes and decisions. In this study, we use signaling theory to provide insight into how environmental organizations communicate to engineering faculty, staff, and students their explicit commitments to diversity and justice, as well as how they convey their organizational culture through images, as well as the racial makeup of their staff and boards of directors.

Service Learning and Community Engagement in Engineering Education

Service learning and the related area of community engagement, sometimes abbreviated as SLCE, are pedagogical approaches where students work with local or distant communities to address a need or problem that the community faces [9], [10], [11], [12]. These projects will often focus on helping underprivileged or under-resourced communities or community organizations. The relative emphasis on service for a community and learning for students may vary across contexts or models from more focused on service or learning to a more balanced focus [10], [13].

Moreover, the reciprocity between partners is a critical feature of these projects that is not always achieved [9]. SLCE research has uncovered that service learning projects can help improve students grades, critical thinking, and writing skills [10], [14], [15], [16] [17], develop professional skills, prepare students for the workforce [18], and attract and retain students who are typically underrepresented in engineering including women and PoC [11]. There are, nevertheless, several challenges to running SLCE projects in engineering. First, coordination with partners, providing adequate time for projects, and coordination across school and community sites are recurring challenges [16]. Cultural and language barriers also arise when working internationally, but these may also arise when student groups have diverse backgrounds or experiences than the communities with which they work.

Research Question:

How do environmental organizations' websites communicate their mission, commitment to justice, and organizational diversity (i.e., racial and gender diversity)?

Methods

In this study, we initially identified environmental organizations within the Greater Buffalo-Niagara region of New York, focusing on Erie and Niagara counties. We defined these organizations as entities primarily dedicated to advocating for, analyzing, and monitoring environmental issues or expressing a general appreciation for the environment [19]. To create our initial list of environmental organizations, we started with the Partnership for the Public Good (PPG), a nonprofit with over 400 member organizations that supports nonprofit partners and the broader Western New York (WNY) region through advocacy and collaboration. From PPG's membership, we selected 43 partner organizations with environmental connotations in their names or mission statements. For instance, we highlighted environmental-related words in organization names, such as *Buffalo Women of Environmental Learning & Leadership*, and identified organizations like *PUSH Buffalo* based on their mission statement's emphasis on environmental justice.

Using this process, we discovered the *Western New York Environmental Alliance*, an umbrella organization for environmental groups, which added 15 new organizations to our list, resulting in an initial screened list of 58 organizations. In the first phase of website reviews, our research team focused on identifying organization names and mission statements. In the second phase, we excluded organizations without independent websites, as these often-lacked essential information, such as mission statements and board members. We acknowledge that this requirement may be a barrier for some organizations, particularly those in their early stages of development and outreach or with limited resources, and that excluding organizations without active websites could be seen as a study limitation and an area for further investigation.

The list was then reduced to 43 organizations, ensuring their active websites and confirming their location within the Greater Buffalo-Niagara region. This was crucial as we aimed to advocate for local environmental action and wanted to eliminate nationally based organizations masquerading as local partners, such as *Alliance for the Great Lakes*, which did not have a presence in the WNY region.

Navigating Racial Identification Complexity: Recognizing and Classifying People of Color

In the transition from a colorblind era, where people claimed not to see skin color but engaged in racist practices, it is important to debunk this line of thinking. Not only has supposed racial colorblindness contributed to micro and macro aggressions against PoC, but it has also demeaned individuals with color vision deficiency. Colorblindness, or color vision deficiency, refers to seeing colors differently than most people, which can make it challenging to distinguish between certain colors [20]. People of color are generally identified based on a skin tone darker than an olive complexion [21]. While skin color is a visible characteristic, the complexity of racial and ethnic identification should be acknowledged. The visible characteristic of skin color is just one facet, and instances abound where individuals may not conform to preconceived notions.

For instance, there are Latinx individuals who may appear white but identify as people of color [22]. In her theorization of whiteness as property, Dr. Cheryl Harris describes her grandmother as a white-passing woman, who personally identified as an African American [23]. Harris' grandmother leveraged this perception for employment but faced challenges in sharing her African American ancestry. Her experience underscores the complexity of navigating racial identity and how societal perceptions can impact individuals both positively and negatively.

Our study of environmental nonprofit websites in Buffalo seeks to explore how the intricate layers of racial and ethnic identification manifest within organizations' public representations of themselves. Utilizing the Fitzpatrick skin type scale in this [25] study, we classified individuals as people of color (darker than olive) or not. However, we recognize individuals may be miscategorized due to the inability to self-identify as people of color in our study. Self-identification is the most accurate and ethical method of racial and ethnic classification [24]. As an equity-focused and racially diverse research team committed to justice, we leverage research to raise awareness about injustices.

The research posits that assessing these websites is not merely an exercise in classification but a crucial step in seeking potential partners for engineering programs and community collaborations. The methodology employed aligns with the overarching goal of the research, emphasizing trust-building, engagement, environmental justice, creativity, inclusivity, and compliance with legal mandates. In essence, the classification based on skin type serves as a lens through which to view the organizations' commitment to diversity representation. Understanding the racial and ethnic composition of these entities becomes instrumental in assessing their credibility and effectiveness in environmental advocacy. This, in turn, provides educators with a valuable approach for fostering authentic community partnerships that truly enhance the educational experiences of engineering students. By evaluating websites, the study establishes a foundation for informed partnerships that go beyond surface-level engagements.

Results

Mission Statements with Clear Commitments to Diversity and Inclusivity

Of the 43 organizations that remained in our analysis, 17 (39.5%) mentioned justice somewhere on the website, but only 8 (18.6%) used words with the root "just" in their mission statement (Figure 1). Six (13.9%) did not have mission statements on their website (Figure 2).

Figure 1: Organizations with "Just" in Their Mission Statements

Organization	Mission Statement with Mention(s) of Words with the Root "Just" in Bold
Clean Air Coalition	The Clean Air Coalition builds power by developing grassroots leaders who organize their communities to run and win environmental justice and public health campaigns in Western New York.
Global Justice Ecology Project	GJEP explores and exposes the intertwined root causes of social injustice, ecological destruction, and economic domination. GJEP envisions a world in which all societies are just ly and equitably governed with full participation by an engaged and informed populace living in harmony with the natural world and one another.
Mother Earth Literacies	We specialize in curriculum auditing, mapping & development, climate and culture assessments for schools and workplaces, and building inclusive and sustainable environments. As longtime K-16+ educators, we struggled to find interdisciplinary place-based curriculums that engaged students with their environment–so we created our own. We have an Environmental Justice Education (EJE) framework that guides our work. We offer professional development around our published curriculums and help educators decolonize their own curriculum using an auditing and backward planning process (excerpt).
Open Buffalo	Our mission is to advance racial, economic, and ecological justice.
PUSH Buffalo	The mission of PUSH Buffalo is to mobilize residents to create strong neighborhoods with quality, affordable housing; to expand local hiring opportunities; and to advance racial, economic, and environmental justice in Buffalo.
RENEW Institute, University at Buffalo	University at Buffalo's Research and Education in eNergy, Environment and Water (RENEW) Institute is a transdisciplinary, university-wide initiative that addresses the fundamental, interlocking survival issues that face human beings of the twenty-first century. Through research and education, we tackle complex energy and environmental issues; in so doing, we connect the dots among complex sustainability challenges, including their environmental justice dimensions.
Sierra Club Niagara Group	We support NY's 2019 Climate Leadership and Community Protection Act that requires a complete transition to renewable energy, decarbonization and electrification of transportation, heating and cooling our buildings, manufacturing and agriculture. Our transition to a renewable energy economy must be based on economic, racial and environmental justice . The Niagara Group also is working to fulfill the goals in NY's climate legislation including prevailing wages for all renewable energy jobs, a just transition for communities and workers dependent on the fossil fuel or nuclear industries (excerpt).
WNY Youth Climate Council	Youth fighting for climate justice via intersectional education and policy!

Figure 1: Environmental	Organizations in WI	NY and Their Website C	Content (* Means "Just"	in Mission)
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Organization	Mission	Mention of Justice	Pronouns
Adirondack Mountain Club - Niagara Frontier Chapter	Yes	No	No
Buffalo and Erie County Botanical Gardens	Yes	Yes	No
Buffalo Niagara Waterkeeper	Yes	No	No
Buffalo Ornithological Society	Yes	No	No

Buffalo ReUse	No	No	No
Buffalo Women of Environmental Learning & Leadership	Yes	No	No
Citizens Campaign for the Environment	Yes	No	No
Clean Air Coalition	Yes	Yes*	Yes
Coalition on West Valley Nuclear Waste	No	No	No
Cornell University Cooperative Extension of Erie County	Yes	No	No
Designing to Live Sustainably	Yes	No	No
Engineers for a Sustainable World, UB	Yes	No	No
Firsthand Learning	Yes	No	No
Food for the Spirit	No	Yes	No
Friends of Reinstein Nature Preserve, Inc.	Yes	No	No
Friends of Times Beach Nature Preserve	No	No	No
Gardeness, Inc.	Yes	No	No
Global Justice Ecology Project	Yes	Yes*	No
GO Bike Buffalo	Yes	No	No
Good Food Buffalo Coalition	Yes	No	No
Grassroots Gardens	Yes	Yes	No
Groundwork Buffalo	Yes	Yes	No
Massachusetts Avenue Project	Yes	Yes	No
Mother Earth Literacies	Yes	Yes*	No
Native Landscape Resource Center - NYS Office of Parks	No	No	No
Native Plants Collaborative	Yes	No	No
New York Sustainable Agriculture Working Group	No	No	No
Open Buffalo	Yes	Yes*	No
Partnership for the Public Good	Yes	Yes	No
Penn Dixie Fossil Park and Nature Reserve	Yes	No	No
Pollinator Conservation Association	Yes	No	No
Providence Farm Collective	Yes	Yes	No
PUSH Buffalo	Yes	Yes*	Yes
RENEW Institute, University at Buffalo	Yes	Yes*	No
Sierra Club Niagara Group	Yes	Yes*	No
The Change Circle (Sustainable Earth Solutions)	Yes	No	No
U.S. Green Building Council - New York Upstate Chapter	Yes	No	No
University at Buffalo Sustainability	Yes	Yes	Yes
Western New York Land Conservancy	Yes	Yes	No
Wild Spirit Education, Inc.	Yes	No	No
WNY Environmental Alliance	Yes	No	No
WNY Raptor and Wildlife Care, Inc.	Yes	No	No
WNY Youth Climate Council	Yes	Yes*	No
Total "Yes"	37	17	3

Organizations that have explicitly incorporated terms with the root "just" into their mission statements emphasize their commitment to environmental justice, racial justice, and economic justice. They have recognized that justice is not just a peripheral concern but rather a fundamental and essential element of their missions. For example, *PUSH Buffalo*'s mission

statement, "The mission of PUSH Buffalo is to mobilize residents to create strong neighborhoods with quality, affordable housing; to expand local hiring opportunities; and to advance racial, economic, and environmental **justice** in Buffalo" (emphasis added), demonstrates a holistic commitment to the well-being of both the community and the environment.

Likewise, *Open Buffalo*'s mission statement, "Our mission is to advance racial, economic, and ecological **justice**" (emphasis added), unequivocally focuses on advancing racial, economic, and ecological justice, which reflects their commitment to addressing not only environmental concerns but also broader issues of social and economic equity. The *Global Justice Ecology Project* (*GJEP*)'s mission statement is "*GJEP* explores and exposes the intertwined root causes of social in**just**ice, ecological destruction, and economic domination. *GJEP* envisions a world in which all societies are **just**ly and equitably governed with full participation by an engaged and informed populace living in harmony with the natural world and one another." They have taken a comprehensive approach, addressing the intertwined root causes of social injustice, ecological degradation, and economic domination. Their vision of a harmonious world where all societies are justly governed with full engagement and equity signifies their commitment to tackling systemic issues on multiple fronts. These organizations have demonstrated that justice, whether environmental, racial, or economic, is integral to their missions and is central to their work in creating a more equitable and sustainable future for all.

The Power of Pronouns in Workplace Representation

Using pronouns when introducing someone, whether in-person or on a website, fosters inclusivity and respect for individual identities. This practice is not merely a matter of semantics; it is deeply intertwined with creating a welcoming and equitable environment, especially in organizations focused on social and environmental justice. While only 3 (6.9%) of the 43 organizations listed staff and board member pronouns on their websites, it is worth noting that 2 of those 3 organizations, *Clean Air Coalition* and *PUSH Buffalo*, also explicitly articulated justice as part of their missions. Including an individual's pronouns is fundamental to fostering an inclusive culture because it signals that a space is safe, especially for marginalized groups, and conveys the message that every voice matters. This practice is particularly significant for transgender and gender non-conforming folx, for whom the correct use of pronouns is not just a matter of preference but of identity and respect.

Moreover, the correct use of gender pronouns in the workplace is linked to legal and ethical considerations. It helps avoid discrimination claims and demonstrates respect for all individuals, regardless of their gender identity. This aligns with federal laws, such as Title VII of the Civil Rights Act of 1964, which prohibits discrimination based on gender identity or sexual orientation [26]. Furthermore, the use of gender pronouns in the workplace has become increasingly important as companies globally become more gender expansive. This shift towards a more inclusive environment is not just about respecting individual choices; it is about seeing and acknowledging people for who they are and affirming their sense of belonging. This approach is essential in creating a respectful and inclusive work environment, especially for LGBTQIA+ community members who navigate the complexities of gender identity [26].

Clarity and Conviction in Our Approach to Justice

While University at Buffalo Sustainability has made commendable strides in fostering ecological balance on campus, its approach notably needs a pronounced commitment to broader justice concerns. Their mission statement, "We work every day to create a more sustainable campus and community through our teaching, operations and interaction with the community — and we've been doing it for three decades," highlights their longstanding efforts but underscores the critical need for integrating a justice-oriented perspective in sustainability initiatives underscores the critical need for integrating a justice-oriented perspective in sustainability initiatives. True sustainability goes beyond environmental measures; it necessitates a holistic approach that encompasses social, racial, and environmental justice. Addressing sustainability in isolation from these broader justice issues risks overlooking the interconnected nature of ecological actions and their impacts on diverse communities. We can look to their new Climate Justice Committee as a step in the right direction, bringing together various stakeholders to concrete institutional resources to mitigate and adapt to climate change in local Buffalo communities. It is therefore imperative for institutions, especially those in the educational sector, to embed principles of social and environmental justice into their sustainability agendas. This integration aligns with ethical and equitable practices and ensures a more comprehensive and impactful approach to sustainability efforts.

People of Color and Environmental Organizations

Of the 43 websites analyzed, only 34 featured images of people. We noted that organizations with an explicit mention of words with the root "just" in their mission statement were more likely represent people of color (PoC) both in images, and, more importantly, in leadership positions, as well as to display the pronouns used by their staff and/or board members. It is worth noting that while *University at Buffalo Sustainability* did not explicitly articulate justice in their mission, they were one of the three organizations to publish their staff's pronouns and had an above average (46.15%) representation of PoC on their site.

Figure 3 provides a visual representation of the distribution of environmental organizations' percentage of staff who are people of color. The x-axis illustrates the percentage of representation, while the y-axis depicts the count of organizations at each percentage. A reference line at 50% is included for comparison. A notable trend emerges, revealing that most organizations (26) fall below the 50% mark in terms of staff representation, with a prominent peak around 25%. Only a limited number of organizations (8) achieve or surpass the 50% threshold.

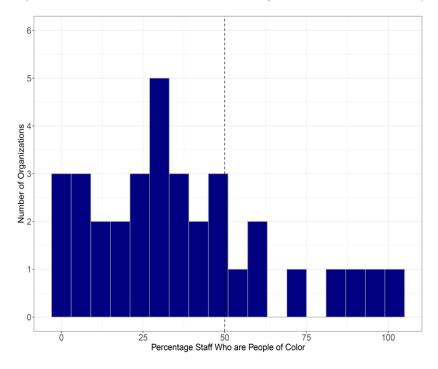


Figure 2: Distribution of Environmental Organizations' Staff Diversity

The analysis extends to the overall visual representation of PoC participating in programming or outreach efforts. This aspect demonstrates a more encouraging level of participatory diversity within the organizations. An equitable expectation would be to witness representation in environmental organizations that is comparable to the city's demographic makeup. In Buffalo, NY, approximately 47% of the population is white. Given that people of color constitute the numerical majority in the city, it is reasonable to expect environmental non-profit organizations to reflect this diversity in their efforts by representing of people of color in their programming, staffing, and board makeup. Figure 3 elucidates the disparity in staff diversity among environmental organizations, emphasizing the need for increased representation. The analysis of programming and outreach efforts underscores a positive trajectory in achieving more inclusive practices, aligning with the demographic landscape of Buffalo, NY.

Discussion

Our exploration into the websites of environmental justice organizations in Buffalo, New York, not only sheds light on the ways organizations can showcase their commitment to equity and inclusion but also prompts a broader discussion on the practical implications of our findings for engineering educators engaged in community partnerships. Recruiting community partners can be a time-consuming endeavor, with numerous potential partners available. The website screening approach introduced in this research offers a systematic and efficient approach for engineering educators to prioritize outreach efforts. Educators can strategically identify organizations aligning with principles of equity and inclusion, streamlining the partnership development process.

The practice of website screening emerges as a valuable tool, providing a structured framework for evaluating potential partnerships. By naming this practice, we acknowledge its significance in guiding engineering educators through the lens of equity and inclusion. This approach serves as a screening mechanism, allowing educators to assess an organization's commitment to diversity, justice, and inclusivity, informing decisions about collaboration. The discussion also extends to the concept of environmental microaggression, emphasizing the importance of considering who is involved in environmental work. By foregrounding the human aspect of STEM (Science, Technology, Engineering, and Mathematics) in environmental spaces, we challenge traditional narratives and encourage a more inclusive representation within the field. Evaluating equity and inclusion becomes not just a checkbox, but a fundamental aspect of the work we do in engineering education.

The website screening approach introduced in this research serves as a starting point for engineering educators navigating the complex landscape of community partnerships. It not only addresses challenges in recruitment and prioritization but also fosters intentionality in visual representations, contributing to a more inclusive and equitable approach to collaboration in environmental spaces.

Conclusion

As engineering faculty developing community relationships, we have a shared interest in seeking partnerships with organizations that value equity and inclusion. We not only develop community partnerships but also help our students find post-graduation employment. Signaling theory makes clear that without pre-determined knowledge of organizations, we will seek information from any available resource, and websites are the most readily available source of data on an organization's mission, goals, and commitment to just practices. Whether consciously or unconsciously, potential partners evaluate organizations according to the signals provided on their websites about the racial diversity of their staff, their implementation of gender affirming practices, and their emphasis on justice.

Our research into the websites of environmental justice organizations in Buffalo, New York, found that organizations can demonstrate their commitment to equity and inclusion through visual and textual indicators on their websites. Organizations with a clear and explicit commitment to these principles are more likely to have representation of people of color on their staff and board of directors and are more likely to list a person's pronouns.

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