

Somos de Muchas Voces: Science and Environmental and Climate Justice Radio Reporting in the Willamette Valley



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Dr. Catalina de Onís is an interdisciplinary teacher-scholar with interests in communication and rhetorical studies, Latina/e/x feminisms, Latine communication studies, environmental, climate, and energy justice studies, and (auto)ethnographic methods. Catalina is the author of *Energy Islands: Metaphors of Power, Extractivism, and Justice in Puerto Rico* (University of California Press, 2021).

Abstract

Effective communication is vital for communities that are typically disregarded and devalued in the dominant scientific discourse; for these communities to convey quality research, culture-centered scientific communication is crucial. This paper explores the significance of environmental and climate justice communication in the Pacific Northwest and emphasizes the need to recognize and address the disproportionate burden faced by communities of color and low-wealth communities. Despite a plethora of English-language publications in the United States, a significant portion of the population, including Spanish speakers, lacks access to culturally resonant scientific information. This lack of access hinders these communities’ ability to contribute to environmental policies and other concerns that affect them. This paper presents a project conducted in collaboration with Radio Poder—a Spanish and Indigenous-language radio station in Oregon that aims to create Spanish-language science programming focusing on environmental and climate justice. By centering the voices of Spanish-speaking communities and featuring Latine scientists, practitioners, and activists, among others, the project seeks to bridge the gap between scientific knowledge

and public understanding to foster inclusive environmental and climate justice communication.

1. Introduction

Culture-centered communication is essential for producing quality research in health and other scientific domains (Dutta). This is especially true in climate research, as research on climate change and potential climate action can be most effective when it is properly communicated to the communities that climate change will affect the most. As the climate crisis worsens, combining with existing and emergent concerns about pollution and toxins, environmental justice is essential for ensuring an equitable future for all inhabitants of the Pacific Northwest. Environmental justice advocates call for the recognition and refutation of the disproportionate burden imposed on poor and racially minoritized communities by environmentally harmful conditions, practices, and systems (Pezzullo and Cox 42). Most environmental and climate science literature produced in the United States is written for English-speaking audiences familiar with the technical jargon of the field. This approach results in many non-English speaking audiences being unable to accurately interpret or contribute to environmental policies and other concerns that could have large ramifications in their communities.

In the summer of 2023, we examined opportunities for generating Spanish-language science radio programming, primarily about environmental and climate justice, that centers on Spanish-speaking listeners and interviewees in the Pacific Northwest. I created a catalog of science-focused radio stories for a primary audience of Spanish-speaking Latine people and communities in the Willamette Valley. This project was in collaboration with Radio Poder, a Spanish and Indigenous-language radio station in Woodburn, Oregon (Onís).

2. Guiding Objectives and Responding to Communication Needs

Struggles for environmental and climate justice for Latine communities in the Pacific Northwest have a long and complex history. Although community activists, in addition to state and federal legislation, have helped to enact policies that combat these injustices, there are still many systemic issues that the Latine community faces today. In Oregon, 15 percent of the total population identifies as Hispanic or Latine, and members of this demographic community continue to grow. In Woodburn, the Hispanic and Latine community is more than 60 percent of the total population (Onís, Cubelos, and Rocio Ortiz Chavarria).

Acknowledging the exclusivity that permeates the field of scientific communication is crucial. Our reporting team sought to intervene against the dearth of Spanish-language scientific communication that centered Latine communities. This effort also sought to

make scientific areas of study and topics more accessible to non-academic audiences—specifically for, and in, conversation with Latine people in the Willamette Valley. Historically, and still too often in the present day, Latine communities have not been centered in research on the significant impacts of climate change, nor the potential equitable solutions in response to its effects, especially in the scientific community (Donaghy). By focusing on this historically ignored group and centering the Latine community when producing our Spanish radio programs, we contributed to cultivating key content and conversations within the Latine community in the Willamette Valley.

In the United States, scholarly and popular science sources are produced in English and are only sometimes translated into non-English languages. During this translation process, many key ideas can be lost, leaving communities with lower English fluency at a disadvantage in science comprehension (Ramírez-Castañeda). The Willamette Valley, and Oregon more broadly, are often regarded as “environmental utopia[s]” (Sifuentez 26), whose white and financially privileged residents pride themselves on their culture’s sustainability and environmental action and recreation. However, efforts in Oregon to address factors threatening the environment and climate change, at best, disregard Latine communities and, at worst, do them active harm (Sifuentez).

One solution to make environmental and climate communication more accessible to Latine communities is to create science content with Spanish-speaking and Latine scientists, practitioners, and activists, among others. This effort must also recognize that many individuals and groups in these communities are leading environmental and climate justice organization. By centering Latine voices for a Latine audience, our team strove to communicate science topics more accessibly, and in a more culture-centered way for Spanish speakers in the Willamette Valley.

3. Literature Review

Environmental justice is the belief that “all people and communities are entitled to equal protection of environmental and public health laws and regulations” (Pellow 42). David N. Pellow, a leading environmental justice scholar, describes four principles, or “pillars,” for understanding a critical approach to this movement:

1. Social inequalities exist and persist in society, requiring intersectional analyses.
2. Environmental injustice exists at both local and global scales and across time.
3. Social inequities are deeply engrained in society and enforced by state powers, pointing to the need for direct democracy.
4. No community or living creature should be “sacrificed” or be considered “expendable” when finding environmental and climate solutions (Pellow 42).

Addressing environmental injustice requires a comprehensive understanding of intersecting power struggles related to racism, gender oppression, and economic

injustices. An intersectional approach to environmental justice with broader societal issues will assist the need to foster meaningful change.

Pillars one and two state that social inequality is something persistent and deeply ingrained in society. Environmental justice scholars and practitioners believe that environmental inequalities persist wherever social and class inequalities reside. Environmental justice actors have historically focused on how racism and economic injustices impact environmental inequity, but critical environmental justice looks deeper into how intersections of race, gender, class, dis/ability, sexuality, and more will impact a person's experiences with power and environmental in/justice.

Pillars three and four describe the deeply ingrained societal injustices that cause marginalized populations to be treated as expendable. The health and well-being of communities of color, and other marginalized groups, have been systemically threatened in favor of corporate profits, governmental regulations, and keeping affluent neighborhoods protected from pollution. Environmental justice scholars refute the "minority move-in hypothesis," which suggests that people of color move into already polluted neighborhoods. Scholars instead state that the federal government and corporations intentionally target communities of color to house polluting industries and dispose of their pollutants (Bullard).

A prime example of unjust environmental policies at the federal level is the existence of "sacrifice zones." These are land areas allotted for chemical refinement or industrial debris overlapping with poor neighborhoods and neighborhoods of color. The toxins in these sacrifice zones cause chronic health issues for those who live in or near them. As a result, Black, Indigenous, and other people of color have a higher chance of dying from environmental factors than White people (Patnaik). When discussing environmental justice critically, these philosophical pillars remind us that environmental discrimination is only one part of a larger system of systemic inequality.

Scholar Julie Sze states that thinking globally of environmental justice, while acting locally, demands people to consider the relationship between the local and global scale; scale, in this context, communicates not only size and space but temporal considerations as well. This understanding means that we must acknowledge how far-reaching environmental toxins can be, as well as the temporal effects of environmental impacts. To strive for environmental justice ethically, we must consider how corporate polluters, political allies, and our own actions impact not only communities past and present, but also communities in the future.

Conversations of environmentalism, especially in the United States, often disregard the systemic and structural environmental issues affecting Black, Latine, and Indigenous areas that are far more likely to experience disproportionate environmental harm. These communities often face environmental discrimination from government actors who make decisions regarding public health and the application of scientific knowledge (Pulido). An example of this is in Brooks, Oregon, where a trash incinerator plant burned

more medical waste than legally allowed in an area with a high population of Black and Latine individuals (Beyond Toxics). This case resulted in the passing of Oregon Senate Bill 488 in June 2023, in which new emissions caps were enacted to reduce the release of toxins into low-wealth areas and communities of color—home to many people who communicate in non-English languages.

The English language is often regarded as the “universal language of science,” and being able to understand the language and its associated jargon is an unspoken advantage in the world of science and academia. In the 1960s, about 40 percent of scientific literature was published in Russian, German, or French; however, in the modern day most scientific research is published in English (Deng). Even though people whose first language is English only make up five percent of the global population, more than three-quarters of all scientific publishing is produced in English and 98 percent of science publications are produced with an English-language option (Kaufman). In some science fields, such as physics, engineering, and mathematics, over 90 percent of all scientific publishing is done solely in English. This emphasis can create a “double disconnection” between academics and communities where English is not the primary spoken language (Montgomery and Crystal 2).

According to a Pew Research Center analysis of US Census Bureau data in 2013, 33.2 million Hispanics speak English proficiently in the United States. Additionally, 89 percent of US-born Latines speak English proficiently as opposed to only 34 percent of non-US-born Latines in the United States (Krogstad). This disparity between the number of Latine individuals in the United States who can speak English proficiently and the number of scientific publications published in an accessible language to them, leads to many Latine individuals having inequitable access to scientific research. This is compounded by the way Latine communities’ environmental knowledge and observations are underheard and erased.

Most scientific publications are written using advanced vocabulary and industry terminology because the primary audience typically consists of field experts and academics. This means that the average person is unable to properly understand the nuances of scientific publications. This discrepancy is even worse with non-heritage speakers of English. In STEM fields, scientists and researchers are thoroughly trained in research methodologies, analytical skills, and the ability to communicate with other scientists and peers; however, there is often a significant gap between how scientists and academics communicate their subject and a layperson’s capacity for comprehension (Brownell). This knowledge gap is often reinforced because most scientists are not trained in how to make their work accessible. This larger disconnect can manifest in layperson audiences viewing the sciences as nebulous fields outside of their breadth of knowledge, and academics finding their research increasingly difficult to communicate to public-facing audiences.

One of the greater issues in bridging the knowledge gap between scientists and the general public is the financial barrier to even begin closing the gap. A major function of scientific communication should be to make research digestible and approachable to diverse audiences without inaccurately conveying information. Many articles are published in scientific journals or in scientific databases which require money to access the information. Additionally, one of the larger invisible barriers includes the ability to comprehend the English language at a post-secondary level to an advanced degree.

The overall disconnect between academic and layperson audiences acts as a language barrier in scientific communication (Simis). As an intervention, this research project produced scientific radio pieces for Radio Poder in Woodburn, Oregon, and surrounding areas with interviews from Spanish-speaking scientists, community organizers, and other individuals promoting multilingual scientific communication and literacy. Woodburn and the surrounding areas have a high percentage of individuals who speak Spanish as their primary language, with many in the community speaking little or no English, and many speaking Indigenous languages (Radio Poder).

4. Context and Methods

Radio Poder is a radio station that creates programs for the migrant community in the Willamette Valley, with a focus on local and national issues affecting Latines. The station's primary audience includes Spanish and Indigenous language speakers in the Willamette Valley, and people interested in how environmental justice, worker's rights, immigration, Latin American news, and access to education and health affect the Latine community. Radio Poder typically creates radio capsules, short programs that share stories about science, culture, or life experiences for their audience. Based on their location and the station's broadcast range, Radio Poder has a potential reach of over 300,000 listeners (Radio Poder).

The preliminary process of this project involved in-depth research of potential stories in the Willamette Valley about scientific studies conducted by Hispanic and Latine, Spanish-speaking scientists, and bilingual community practitioners and activists specializing in projects about environmental and climate justice and Latine community concerns. In some stories, we expanded our topics to include scientists from other areas in the Pacific Northwest, whose work we thought would interest listeners. One such interviewee was Dr. Ernesto Alvarado from the University of Washington, whose research focuses on wildland fire management and fire ecology. He described how communities of color and migrant communities are affected by forest fires. After interviewees, like Dr. Alvarado, agreed to be featured on our program, we set up a preliminary interview with them to better understand their activities and interests. This preliminary interview was conducted in English and consisted of asking their title, their research or other focus, and other open-ended questions about their work. We focused on what was interesting to the interviewee, as we believed this material might be interesting to the Radio Poder listeners as well. We used a similar approach with

community activists by highlighting programming and advocacy efforts that could benefit the Latine community. After the preliminary interviews, we drafted six to seven questions per interviewee about their research or advocacy efforts and how this work can inform the Latine, Spanish-speaking public.

Using equipment and podcast recording studios at the University of Oregon's School of Journalism and Communication, each interviewee arrived for a casual, podcast-style conversation to talk about their research or activism. If an in-person interview was not possible, a Zoom interview was conducted. This casual atmosphere was intended to make the interview comfortable and to make the format of the interview more approachable. After the interview, we recorded a voiceover, including a conclusion, to give context. Other program creators and I used Adobe Audition during post-production to offer clarifying terms mid-interview to make complex topics more digestible. This process involved developing a variety of skills essential for journalistic radio reporting, such as interviewing and video editing.

5. Results

After more than three months of work (June to September 2023) our team created 12, 10-minute, science stories for Radio Poder (<https://turadiopoder.org/category/radio-poder/>). The topics of our stories fell into three general categories: climate change-related scientific radio reporting; general scientific radio reporting; and programs meant to promote scientific engagement for Willamette Valley Latine individuals who are not in the sciences. This latter category involved justice-oriented and recreation-focused programming.

Our first interview featured Dr. Alvarado of the University of Washington, who discussed how wildfires in the Pacific Northwest harm migrant communities. In his interview, he explained how forest fires can impact people's financial situation and health. Those who have office jobs can often work from home to avoid the smoke produced by forest fires, but many Latine migrant individuals in the Pacific Northwest work outside as farm laborers or as pineros—tree planters. As a result, migrant communities are at an increased risk of negative health effects caused by forest fires and climate change. Because the interview was conducted in Spanish, Dr. Alvarado was able to discuss the impact of his climate research in his native language to a Spanish-speaking audience without any key issues being lost in the translating process.

Featuring scientific research that was not necessarily climate change-specific proved to be useful in this program because it provided a broader range of what scientific research can look like in practice. This was the case for our third interviewee, Nicole Martinez-Llaurador, a doctoral candidate at the Institute of Ecology and Evolution at the University of Oregon. Martinez-Llaurador explained the importance of native bees to local ecosystems in the Pacific Northwest. She also detailed the process of her data collection, which included sitting in a field of flowers and counting the number of bees that landed

on a patch of flowers in a given time frame. Martinez-Llaurador's interview sought to benefit listeners by giving an example of how ecological data collection can be performed in the real world, and providing a more nuanced view of how scientific research can be conducted for a non-scientific audience.

Some of our other interviews highlighted community events to showcase Latine advancements in the STEM fields at all education levels and to make science more accessible for listeners. In an episode that featured two shorter stories, the first section highlighted an event for a youth science summer program at the University of Oregon's Museum of Natural and Cultural History in Eugene. This program was meant to promote scientific engagement among bilingual children and had the goal of inspiring students to become more engaged with scientific exploration. For the second part of this story, we interviewed undergraduate student Ruby Canchola, president of Oregon State University's chapter for the Society of Professional Engineers. Her interview highlighted the importance of having a community of other Latines in STEM on campus, and how this presence can help retention rates in engineering for historically underrepresented individuals. In this project, we wanted to showcase existing and continuing work being conducted by Latine and Spanish-speaking scientists in the Pacific Northwest, and to provide resources on how audience members and their families can learn about scientific research and/or become involved in public science in their community.

Many of the episodes featured multiple voices and multidisciplinary interviewees. Individuals not featured in episodes were still able to play a large part in supporting content generation and Latine community building among and beyond members of the production team. Our project also resulted in an online archive of shows that Dr. Catalina de Onís organized and edited (<https://radiocienciayjusticia.com/>). Both this online contribution and the larger project have been featured in communications by the University of Oregon's Center for Science Communication, in addition to reaching many other audiences.

6. Conclusion

The guiding goal of this project involved highlighting the necessity of culture-centered scientific communication, especially in the context of environmental and climate justice. We sought to inform Spanish-speaking individuals in the Willamette Valley about scientific research, how it is conducted, and suggestions for how to find meaning in this material. This project approached Latine and Spanish-speaking interviewees and audiences as science communicators, often emphasizing community members as key actors in calling attention to problems and making crucial changes. We recognize the essential role that communication plays in ensuring that scientific research is accessible to all communities in the Willamette Valley. By centering the voices and experiences of Spanish-speaking communities in the Pacific Northwest, and by featuring the work and research being done by Latine scientists, community organizers, and others, we have

taken a step toward bridging the gap between scientific knowledge and public understanding.

Through our collaboration with Radio Poder, we have worked to make complex scientific concepts more approachable and relevant to the daily lives of our audience. This study also creates space for future radio programming to include and extend beyond science communication that centers on Indigenous speakers, who are disproportionately impacted by compounded crises (Herrera; Onís; Stephen). Moving forward, it is imperative that we prioritize inclusive and culturally relevant communication in scientific research and advocacy, thereby creating space for communities to empower themselves by engaging meaningfully in the pursuit of environmental and climate justice. Scientific communication marks a crucial component of this process and must be tailored to and made by the communities most affected.

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