EXAMINING ENVIRONMENTAL INEQUALITY IN

PETERBOROUGH/NOGOJIWANONG, ONTARIO THROUGH

PHOTOVOICE

A Thesis Submitted to the Committee on Graduate Studies

In Partial Fulfillment of the Requirements for the Degree of Master of Arts in the

Faculty of Arts and Science

TRENT UNIVERSITY

Peterborough/Nogojiwanong, Ontario, Canada

September 2025

Abstract

Examining environmental inequality in Peterborough/Nogojiwanong/ Ontario through Photovoice

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This thesis explores environmental justice in Peterborough/Nogojiwanong, Ontario, focusing on how marginalized communities—including Indigenous peoples, people of colour, and low-income groups—experience and respond to environmental harm. Using Participatory Action Research and Photovoice, 22 co-researchers shared their lived experiences shaped by colonialism, systemic racism, and other intersecting forms of oppression. The study reveals widespread environmental injustices, including unequal exposure to harm, exclusion from decision-making, and limited remediation. Participants highlighted how race, gender, class, and (dis)ability compound these injustices, while also framing environmental harm as deeply connected to housing instability, economic precarity, and mental health. Although participatory methods fostered community dialogue and empowerment, institutional barriers continue to hinder transformative change. The findings underscore the need for long-term, community-driven strategies that center lived experience and promote distributive, procedural, and restorative justice. This research demonstrates how participatory approaches can support marginalized voices in advocating for more equitable environmental policies and outcomes.

Keywords: Environmental justice, participatory action research (PAR), photovoice, marginalized communities, community engagement, socioenvironmental factors, environmental harm, Peterborough/Nogojiwanong, Ontario

The following glossary clarifies key terms and concepts used throughout the thesis, enhancing accessibility and fostering a shared understanding among diverse audiences.

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Glossary

Equity-Deserving Groups: Peterborough/Nogojiwanong Equity-deserving groups are communities that experience systemic barriers to full participation in society due to factors such as age, race, gender, disability, economic status, or sexual orientation, and who may actively seek social justice in response to these challenges"** (City of Peterborough/Nogojiwanong Public Arts Policy).

Community: Refers to the group of co-researcher participants connected by shared experiences of environmental injustice. This research is participatory, not based on a single geographic or cultural community.

Intersectionality: Coined by Kimberlé Crenshaw, *intersectionality* refers to how social categories such as race, class, gender, age, and (dis)ability overlap and interact to compound experiences of discrimination and disadvantage. It helps explain why some groups face greater environmental risks. It emphasizes that these forms of oppression cannot be addressed in isolation, as they are interconnected and mutually reinforcing.

LGBTQIA+: Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual Plus is an umbrella term that encompasses groups living out with the dominant sexual orientation (straight) and cisgender identity (gender assigned at birth). Also often referred to as the rainbow/queer community.

Ableism: Ableism refers to discrimination and social prejudice against people with disabilities, rooted in the belief that non-disabled bodies and minds are superior; it relies on harmful stereotypes and assumptions that people with disabilities need to be 'fixed' and are inherently less capable.

Ageism: Ageism refers to discrimination or prejudice against individuals based on their age, often targeting both older and younger people through stereotypes and biased assumptions.

Sexism: Sexism refers to prejudice or discrimination based on a person's sex or gender, most often directed toward women.

Environmental racism: Environmental racism refers to the systemic and disproportionate exposure of communities of colour to environmental hazards—such as landfills, industrial sites, and polluted air or water—resulting in higher rates of health issues; it is a form of systemic racism to which the environmental justice movement actively responds.

Chapter 1: Introduction

Background

Environmental justice is a scholar-activism paradigm that explores the uneven distribution of benefits and burdens in the environment among diverse groups, with special concern for marginalized groups (Méndez-Barrientos et al., 2024). This field of study shows how unequal environmental burdens are systematically imposed on low- income, racialized, and Indigenous people, and linked to social injustices like racism and colonialism.

While the mainstream environmental movement and scholarship in environmental studies explore how environmental harm threatens the health of the population and nonhuman biodiversity, the paradigm of environmental injustice is centered on the social and political processes producing and reproducing these inequities, demonstrating that they are not equally distributed but reflective of power relations in a particular society (Pulido, 1996; Pellow, 2000).

This research is part of Dr. Stephanie Rutherford's a SSHRC-funded project that explored various participant-identified manifestations of environmental injustice in Peterborough/Nogojiwanong through oral histories, mapping, and participatory action research. My role in the project focused on understanding people's experiences of environmental risk through a photovoice project. There is a notable gap in environmental justice research concerning populations in smaller cities. This thesis aims to address this gap by contributing to the creation of knowledge that promotes environmental justice

through community-based interventions. Using a Community-Based Participatory Research (CBPR) approach, we engaged residents of Peterborough/Nogojiwanong to explore various manifestations of environmental injustice and to understand their experiences of environmental risk. By examining how socio-environmental factors shape perceptions of community assets and concerns, this study represents a crucial first step in developing a more robust conceptual framework for understanding the relationship between communities and their environments in small cities like Peterborough/ Nogojiwanong. Additionally, the findings from this research could serve as a foundation for creating ecologically valid person-in-environment interventions.

Peterborough/Nogojiwanong is bounded on every side by fertile resources, such as rivers, lakes, and forests on which the Anishinaabeg have stewarded since time immemorial. However, ongoing colonialism in the region—including land dispossession and treaty violations under the Williams Treaties—continues to produce deep and intertwined environmental and social injustices for First Nations communities. These include systemic inequities such as limited access to clean drinking water, inadequate housing, and disproportionately high rates of unemployment (Goldfinger, 2021). Despite being situated in a region with a high density of freshwater resources, communities like Curve Lake have, until recently, been forced to rely on bottled water on and off for decades because local resources are contaminated. This geographical paradox shows how environmental damage is not only a concern with ecological devastation but also a reflection of socio-political decision-making processes disenfranchising low-income and Indigenous Peoples (Coates, 1999).

This thesis utilizes photovoice to understand environmental injustice in Peterborough/Nogojiwanong. By considering everyday life of residents, this research seeks to identify how marginalized community members understand the intersection of environmental risk and social inequities, such as homelessness, racialization, and poverty. While research on environmental justice has been mostly carried out in major U.S. cities and industrial sections of the country, there is a notable knowledge gap in research on these issues in smaller cities in Canada. The research in this thesis seeks to close the knowledge gap by understanding how these dynamics unfold in Peterborough/Nogojiwanong.

Environmental justice is not merely concerned with the degradation of the physical environment, but it also concerns the social relations that underlie these environmental injustices. The concept of procedural justice, central to the environmental justice movement, draws attention to how decisions are made regarding the environment. Procedural justice draws attention to the exclusion of marginalized groups from decision- making regarding the environment and calls for their involvement in implementing, enforcing, and planning environmental policies (Brulle & Pellow, 2006). The thesis takes an interest in the question of who has the right to be involved in the governance of the environment and how marginalized groups' voices are systematically excluded and marginalized in policymaking, despite being over-exposed to environmental harms (Schlosberg, 2007). Procedural justice is relevant in understanding how inequities are created and reproduced in power relations within the environmental governance process.

Research Objectives

The main objective of this research is to explore how environmental injustice manifests in Peterborough/Nogojiwanong, Ontario, and how marginalized communities are experiencing and responding to environmental hazards. The study is grounded in the daily lives of racialized and Indigenous Peoples and low-income residents. The study aims to generate not just theoretical knowledge about environmental injustice, but also knowledge that is actionable and has the potential to shape responses and tackle these issues with community-engaged solutions.

This research is guided by several specific objectives:

1. To investigate how marginalized groups in Peterborough/Nogojiwanong are experiencing risk and injustice in the environment to understand how these groups perceive themselves as experiencing environmental harm through air and water pollution, denial of access to green space, or risky public spaces.

2. To explore how participatory action research through photovoice can be applied as an instrument in the fight against environmental injustice. The research applies these methods to raise marginalized groups' voices and empower them to document and campaign on behalf of shifts in the environment in which they live.

3. To contribute to a better understanding of environmental injustice in smaller Canadian cities like Peterborough/Nogojiwanong.

Significance of the Research

This research advances knowledge in the field and informs practical-level efforts on combating environmental justice. Despite the environmental justice movement's contribution to elucidating how marginalized groups are burdened with a more significant share of environmental harm, much of literature has been on major cities primarily in the United States. There is relatively little research on environmental justice in smaller cities in Canada like Peterborough/Nogojiwanong, where colonialism, poverty, and disregard for the environment intersect in complicated ways. The research fills a gap in examining a population not yet explored in the environmental justice paradigm.

This research contributes to the understanding of how environmental harm intersects with gaps in distributive, procedural, and restorative justice, particularly in communities that have been historically excluded from environmental governance. By focusing on the specific local context of Peterborough/Nogojiwanong, this study demonstrates how damage to the environment is not merely an issue of physical harm but is intimately tied up with social, economic, and political processes. The study also refers to the need for a local practice and concept of environmental justice with a consideration of the particular histories, cultures, and socio-political conditions in smaller-scale societies. In so doing, the research contributes knowledge on environmental injustice with a consideration of the societal and ecological elements. In addition, participatory action research (PAR) and photovoice methods are significant because they allow marginalized groups to engage in the research process. These methods allow the research participants to document their experiences, narrate what they see, and plead with a call for change. Not only is such research helpful in producing valuable

information, but the process itself creates a perception and a sense of ownership and agency on the researchers' and research participants' sides, who are made capable of informing and guiding the research and taking part in constructing a solution to the environmental injustices in their area. Finally, the empirical implications are significant in informing policy and community interventions. The research could inform local decision-makers, planners, and environmentalists on the specific environmental problems in marginalized groups in Peterborough/Nogojiwanong. The research could also inform designing more inclusive and sustainable policies on rectifying environmental inequities and advancing marginalized groups' rights to a secure and healthy environment.

Research Questions and Scope

The research explores several sub-questions:

1. What are marginalized peoples' daily experiences with risk of harm in the environment? The question here is how these groups perceive their environment, what environmental harms they are experiencing, and how they respond and challenge environmental harm.

2. How do race, gender, ability and class play into the environmental inequities confronting marginalized groups in Peterborough/Nogojiwanong?

3. How can participatory action research and photovoice enable marginalized groups to document and address environmental injustice? The potential these methods have in enabling groups to engage and address environmental issues and pressure decision-makers to reform policies is explored in this research.

The scope of the research is with marginalized groups in Peterborough/Nogojiwanong, including Indigenous peoples, disabled peoples, women, racial minorities, and low-income residents. The research examines how these groups are experiencing risk of harm in the environment and how these experiences are related to other social inequities.

Research Motivations and Positionality Statement

As I engage in discourse surrounding environmental injustice, it is imperative to acknowledge the lens through which I perceive and interpret the study. This thesis explores environmental injustice and how racialization, gender, ability and class are implicated in the experience of environmental harm in Peterborough/Nogojiwanong. My research seeks to understand people's experiences of environmental risk.

My passion for this study is deeply rooted in an intersection of personal, academic and professional experiences that have significantly shaped my perspective. Coming from the Caribbean, I've seen directly the significant impact of environmental injustice, as seen by the vulnerability of marginalized and developing communities in the face of the climate crisis. Upon relocating to Canada, I have noticed profound similarities between Anishinaabeg and Caribbean worldviews, especially in how both see humanity as inseparable from the land, water, animals, and plants. This relational worldview closely mirrored the perspectives of co-researchers in this study, who emphasized the importance of kinship with land and water as central to their understanding of environmental justice and healing. In both traditions, these elements are not seen as separate or exploitable

resources, but as kin—relations to be cared for, respected, and honored through reciprocal and responsible stewardship.

My academic journey in an interdisciplinary four-year dual major program pursuing Aquatic Resources, Public Policy and Social Research provided me with a nuanced understanding of environmental injustice, where poor and racialized people face disproportionate exposure to environmental hazards, less environmental benefits, and have access to fewer resources to mitigate the experience of harm (Harris, 2019; Meij, et al., 2020). These facets collectively contribute to the framework through which I navigate discussions on the experiences of marginalized residents of Peterborough/Nogojiwanong while exploring different manifestations of environmental injustice through oral histories, mapping, and participatory action research.

My professional journey has equipped me with a solid foundation in social justice research. In my roles as a research assistant at both York University and the Nova Scotia Centre for Employment Innovation Center, I have gained practical experience in hands- on qualitative data collection, management, and analysis. My hands-on experience in qualitative methodologies and participatory action research has not only strengthened my skill set but has also played a pivotal role in shaping the design and evaluation of this study.

My position as an outsider influenced the conduct of this project. As a visibly racialized woman of colour, I am conscious of my inherent outsider position in this study. According to Statistics Canada (2021), Peterborough/Nogojiwanong is a predominately white space, with racialized individuals comprising 6.6% and Indigenous Peoples representing 4.9% of the population across the county (Statistics Canada, 2021).

Recognizing that I am a minority and not a permanent resident in this community, I am mindful of the potential implications this may have on people's willingness to share their experiences. Being relatively new to the Peterborough/Nogojiwanong community, I lack prior knowledge of residents' encounters with environmental injustice here. I rely on word-of-mouth and the limited information available on the internet to learn about the environmental injustices that people confront. In addition to this, my role as an academic adds another layer to my positionality. Indigenous communities, with a history marked by colonialism and a justified distrust of western academia, often hesitate to participate in research. As an academic, I inadvertently uphold a system that has perpetuated broken relationships and fostered centuries of mistrust. This raises questions about what I, as an academic, symbolize when collaborating with vulnerable groups. It highlights the implication of being part of a system that, for Indigenous communities, embodies colonialism and supports structures of power and capitalism that do not align with their values. I aim to balance the power dynamics inherent in academia by embracing the principle central to harm reduction of 'meeting people where they're at' (Israel et al., 2013). This involves honoring and respecting individuals' desires and not imposing my own expectations. Along with prioritizing harm reduction in these interactions, my approach includes practicing empathy and valuing participants' input, allowing them to guide the process and communicate their needs in the moment.

In conclusion, I aim to advance transparency and create a foundation for respectful dialogue. Acknowledging and understanding these hidden and more obvious influences are essential for facilitating a more comprehensive and self-aware research practice. This

awareness allows me to remain informed and critical about the evaluation of research methods and findings, contributing to the overall development and integrity of my research process.

The Research Context: Peterborough/Nogojiwanong

This section provides important context for understanding environmental injustice in Peterborough/Nogojiwanong. It begins with the historical and ongoing impacts of settler colonialism, focusing on the Williams Treaties and the disproportionate housing instability among Indigenous peoples. It then turns to the opioid crisis and homelessness, illustrating how social and environmental risks intersect for marginalized communities. Finally, it explores the city's industrial legacy, particularly the environmental contamination linked to General Electric. Together, these issues highlight the structural inequities that shape how environmental harm is experienced and responded to in the region—laying the groundwork for the community-based findings discussed in later chapters.

The Williams Treaties

Prior to settlement Peterborough was known as Nogojiwanong, which is Anishinaabemowin/Ojibwa for "place at the end of the rapids," before being renamed by European settlers. Treaty 20, signed in 1818, was an agreement between the Crown and the Chippewa Nation involving the sale of land. The Williams Treaties, signed in 1923, involved several Mississauga and Chippewa peoples (Surtees, 1986). by The Williams Treaties were meant to settle conflicts over land and harvesting rights in Ontario and strengthen relations between First Nations and the Crown, they have instead resulted in lasting disputes. Ongoing

issues include disagreements over land compensation, the provision of sufficient reserve lands, and the acknowledgment and safeguarding of treaty-based harvesting rights (Government of Canada, 2017a). The role of colonialism of settlers in these ongoing conflicts that have resulted in intergenerational traumas and inequities for Indigenous Peoples. As a result of ongoing colonial structures, housing instability remains a significant and persistent inequity affecting Indigenous people.

There is growing overrepresentation of indigenous people experiencing homelessness in the City of Peterborough/Nogojiwanong, with about 27% of homeless people in a survey identifying as Indigenous (United Way of Peterborough/Nogojiwanong and District, 2022). The percentage of Indigenous people that are experiencing homeless in Peterborough/Nogojiwanong is almost 10 times higher than the percentage of Indigenous people in Peterborough/Nogojiwanong's total population (United Way of Peterborough/Nogojiwanong and District, 2022).

Opioid Crisis and Homelessness in Peterborough/Nogojiwanong

In Peterborough/Nogojiwanong, there is much conversation about the state of homelessness. The Point-in-Time (PiT) Counts are a community-level measure of sheltered and unsheltered homelessness (Government of Canada, 2025). According to the data collected in the 2023 (PiT) Count, the depth and complexity of need in Peterborough/Nogojiwanong homeless population is increasing. A PiT Count is used to collect numerical and basic demographic information about individuals and families experiencing homelessness at that moment in time.

There has been a sharp increase in people who report living rough from 6% in 2018 to

27% in 2021 and an alarming increase in people experiencing chronic homelessness from 49% of homeless people in 2018 to 71% in 2021 (United Way of Peterborough and District, 2022). The relationship between substance uses and homelessness is complex. Peterborough/Nogojiwanong has been among the top cities in Ontario for per capita rates of opioid-related deaths, and its residents have experienced the pain of both prescription opioids as well as illicit drugs such as fentanyl. The origins of the crisis are complex; they involve decades of excessive prescribing of painkillers in the 1990s and early 2000s, a shortage of adequate addiction services, and economic pressures driving an increase in substance use (Qureshi, 2024). As the crisis deepens, it has disproportionately affected marginalized communities, including individuals experiencing homelessness, Indigenous Peoples, and those living in poverty.

Consequently, the opioid crisis in Peterborough/Nogojiwanong has resulted in a public health emergency, an overload of health services, and rising mortality rates, but limited success in decreasing the aggregated harms from opioid use disorder. The overdose crisis continues to affect communities and there has been a substantial increase in overdose deaths in Ontario. In Peterborough/Nogojiwanong, there has been a sharp increase in opioid related overdose death in the last 6 years. Public Health Ontario has a resource tool that provides epidemiological information on substance use and harms data in Ontario. It enables users to explore the most recent 10 years of data including emergency department visits, hospitalizations and deaths. Table shows the cases and rates of emergency department visits due to opioid-related poisonings in Peterborough/Nogojiwanong Public Health on a ten-year span from January 2014 to January 2024 (PPH, 2024).

Table 1: Cases and rates of Emergency Department visits due to opioid-related poisonings in Peterborough Public health from January 2014 to January 2024

Cases and rates of ED visits due to opioid-related poisonings in Peterborough Public Health
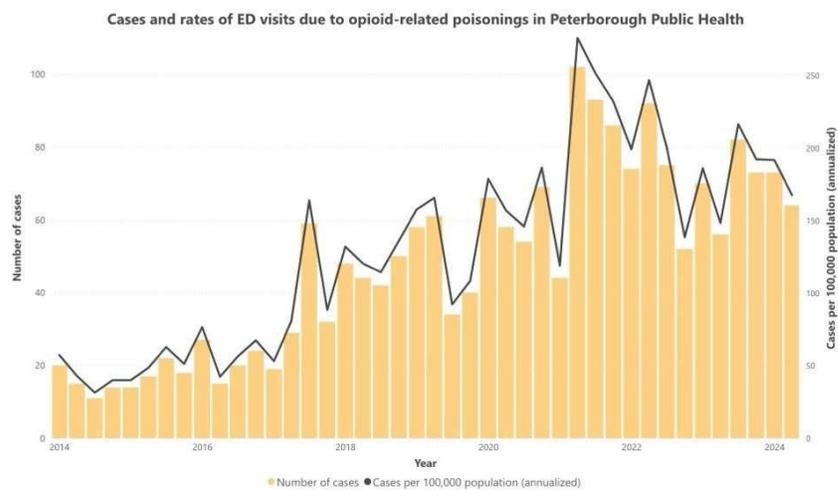
Notes:

Monthly and quarterly rates have been annualized for comparability between different time periods. Death data for opioid toxicity in 2022 and 2023 includes probable deaths and should be considered as preliminary and subject to change. Emergency department visits in the most recent quarter should be considered as preliminary and subject to change. Drug categories are not mutually exclusive; multiple drugs may have been present in a single death. See technical notes for more details.

The crisis, in turn, has shown that environmental and social risks are intertwined: many of those affected by addiction end up in unsheltered, unprotected, and toxic environments. People who are homeless or marginally housed in Peterborough/Nogojiwanong are often

forced to live in abandoned buildings, tents, or makeshift structures, where they are subject to hazardous environmental conditions (Qureshi, 2024). These spaces may be contaminated with toxins, such as asbestos, mold, and lead, and may lack basic sanitation, increasing the risk of illness and further complicating recovery efforts. For those who use opioids, these spaces are not just physically dangerous but also emotionally damaging, as these living conditions often increase feelings of loneliness, hopelessness, and despair (Maclean et al., 2020). The absence of stable housing and access to adequate and secure places for regeneration establishes a cycle where it becomes even more difficult for people suffering from addiction to overcome and recover.

You might wonder why a thesis centered on environmental injustice is discussing the opioid crisis. I contend that the opioid crisis in Peterborough/Nogojiwanong is a justice issue, as those that are the worst impacted are also the populations that experience the greatest socio- economic inequities. A lack of political will to address these systemic failures will only increase the environmental risks faced by these communities— particularly given limited healthcare resources, scarce addiction treatment facilities, and the absence of supportive housing options, leaving many to bear the consequences (Qureshi, 2024). In addition, the stigma associated with drug use has further marginalized people, making it even more challenging for those impacted by addiction to receive the assistance they require. The environmental and social vulnerabilities exacerbate by the opioid crisis require integrative solutions between healthcare and housing. For example, policy responses need to only focus on the immediate health crisis; they should take into account underlying socio-environmental factors that cause addiction, such as lack of housing, lack of clean-living situations, and lack

of access to mental health care (Volkow & Blanco, 2021). Tackling these systemic inequities is, in fact, integral to helping Peterborough/Nogojiwanong move forward in ways that support recovery and public health for all and build a more robust community where every resident has the opportunity to live in safe, healthy conditions.

History of Industrial Legacy

Peterborough/Nogojiwanong also has a history of environmental harm with General Electric's 125-year history in the city. Peterborough/Nogojiwanong was the first town in Canada to use electric streetlights on May 24, 1884. Because it was one of the first cities in Canada to begin generating hydro-electrical power, General Electric (GE) was attracted to Peterborough/Nogojiwanong to take advantage of this economical energy source. The GE plant in Peterborough/Nogojiwanong undertook production on a massive scale with a complex mix of industrial processes utilizing huge quantities of some 3,000 chemicals creating legacy of environmental contamination associated with GE operations, primarily trichloroethylene (TCE) and polychlorinated biphenyls (PCBs). The use of PCBs at the GE plant has left a long-standing history as witnessed by contamination throughout the plant and surrounding community in Peterborough/Nogojiwanong. Many of the thousands of working-class GE employees became sick and have fought a decades-long battle with the Workplace Safety and Insurance Board to be compensated for cancers that are a result of their work at the plant (Kovach, 2019). In addition, GE employees were given excess asbestos from the plant to take home and insulate their homes (Seglins, 2019). Many workers and their families were affected by the toxin. Many chemicals used in the GE production processes were

subjected to high heat stress resulting in thermal decomposition by-products that are highly toxic and carcinogenic (DeMatteo & DeMatteo, 2017). Concerns about these exposures escalated as workers began to notice large numbers of workers dying of various cancers (often between the ages of 30 and 40 years) (DeMatteo & DeMatteo, 2019). Other diseases, such as chronic respiratory disease, neurological diseases, and reproductive health problems, have been increased due to the environmental pollution caused by this industrial legacy.

This thesis brings together multiple perspectives to critically examine the specific manifestations of environmental injustice in Peterborough/Nogojiwanong. By centering the lived experiences of community members, it explores how environmental risks are understood, experienced, and navigated within the local socio-political and ecological context. Through a community-engaged approach, this research highlights the ways in which systemic inequities shape environmental vulnerabilities and access to decision- making processes. In doing so, it advances pathways for achieving distributional, procedural, and justice of recognition, offering insights that contribute to both academic discourse and practical, community-driven solutions for a more just and sustainable future.

Chapter 2: Literature Review

Introduction

This chapter provides a comprehensive review of the key literatures that informs this research: environmental justice, participatory action research, and photovoice as a methodological approach. It situates the study within broader academic and activist discussions on environmental injustice, particularly in Canada, and highlights the role of participatory research in amplifying community voices and fostering social change.

The chapter begins by examining the concept of environmental justice, tracing its historical development and the ways in which racialized and low-income communities have been disproportionately exposed to environmental risks. It then explores environmental injustice in the Canadian context, with particular attention to the historical and ongoing struggles of Indigenous communities in relation to land, sovereignty, and environmental harm. Additionally, different definitions of environmental justice— including distributive, procedural, and restorative justice— are discussed, alongside an analysis of the strengths and limitations of various environmental justice frameworks. The discussion then transitions to Participatory Action Research (PAR), an approach that integrates research, education, and action to advance social justice. Finally, the chapter examines photovoice, the primary methodology employed in this study. Photovoice, developed by Drs. Caroline Wang and Marianne Burris, merges participatory research with visual storytelling, enabling marginalized communities to document and share their lived experiences. The application of photovoice in

environmental justice research is explored, with attention to how it has been used to highlight Indigenous environmental knowledge, document environmental injustices and advocate for systemic change. By synthesizing these literatures, this chapter establishes the theoretical and methodological foundation for this research, demonstrating how photovoice and participatory action research contribute to a deeper understanding of environmental injustice in Peterborough/Nogojiwanong.

Environmental Justice

Over the last 30 years, geographers, sociologists, urban planners, and community activists have been engaged in research that has shown that racialized and poor communities in both Canada and the United States experience increased levels of environmental risk (Bullard, 2000; Gosine & Teelucksingh, 2008; Pellow, 2007; Waldron, 2018; Wright, 2005). This is known as environmental injustice, where poor and racialized people face disproportionate exposure to environmental hazards, less environmental benefits, and have access to fewer resources to mitigate the experience of harm (Harris, 2019; Meij, et al., 2020). In contrast, Dr. Robert Bullard, widely recognized as the "father of environmental justice," asserts that environmental justice upholds the principle that all individuals and communities are entitled to equal protection and enforcement of environmental laws and regulations (Bullard, 1996).

However, this ideal has seldom been a reality for people of colour and low-income individuals. Environmental injustice is shaped by the entrenched patterns of racism and inequality that have existed in Canada since its founding. These patterns continue to impact

every aspect of society, including housing, employment and wages, access to resources, and healthcare.

Environmental justice is a concept that links environmental health to rights debates around access to a healthy environment. It fundamentally deals with the distribution of environmental goods and harms, and looks at who bears those harms/impacts and who is responsible for creating these harms, in both a practical sense and also in terms of policy decisions. Environmental injustices occur at a variety of scales, from transnational to local. These dynamics are visible in Peterborough/Nogojiwanong.

Peterborough/Nogojiwanong offers an important case study for investigating major factors behind environmental hazards. This community faces severe inequality and remains predominantly white, largely because of historical practices like redlining and exclusionary zoning (CRRC, 2021). Across Peterborough/Nogojiwanong County, visible minorities make up 6.6% of the population and Indigenous Peoples make up 4.9% of the population (Statistics Canada, 2021 Census of Population). Curve Lake and Hiawatha First Nations have struggled to access clean water for decades (Goldfinger, 2021). Concerns about aging infrastructure and the risk of waterborne illness have forced Curve Lake residents to rely on bottled water deliveries, creating a cruel paradox in a location rich in freshwater resources. The situation in Peterborough/Nogojiwanong exemplifies Bullard's concept of environmental injustice, characterized by the inequitable distribution of environmental benefits and harms.

The History of the Environmental Justice Movement

The environmental justice (EJ) movement has roots in Asia, Africa, Europe, and the Americas. However, due to the sustained nature of its grassroots activism, the United States is often regarded as the primary origin of the EJ movement (Bullard, 1994; Schlosberg, 2003). The EJ movement began with a protest in Warren County, North Carolina, in 1982. A hazardous waste landfill for PCB-contaminated soil, which had been illegally dumped along roadways, was placed in a predominantly African American community. Despite evaluating several potential sites, the State selected this small African American community for the landfill (U.S. FWS, 2024). In response, the National Association for the Advancement of Colored People (NAACP) and other organizations led a large protest. Over 500 demonstrators were arrested, including Dr. Benjamin F. Chavis, Jr. of the United Church of Christ and Delegate Walter Fauntroy, then a U.S. House Representative from Washington, D.C. In 1987, Benjamin Chavis, Jr. published a report highlighting that race influenced the location of hazardous waste facilities (Chavis & Lee, 1987). He found strong evidence of environmental racism where hazardous sites were intentionally placed in areas predominantly inhabited by minorities. Chavis defined environmental racism as "the intentional siting of hazardous waste sites, landfills, incinerators and polluting industries in areas inhabited mainly by Black, Latinos, Indigenous peoples, Asians, migrant farm workers and low-income peoples" (as cited in Gosine & Teelucksingh, 2008, p.4). He further contended that racial discrimination in environmental policymaking is the targeting of communities of color for toxic waste disposal, and the exclusion of these communities from environmental decision-making.

The resistance in Warren County and other places led environmental justice advocates to hold the First National People of Color Environmental Leadership Summit. In 1991, 650 grassroots and national leaders from around the world gathered in Washington, DC, for this an event described as "the single most important event in the environmental justice movement" (Bullard, 2005, p. 20). At this summit, delegates adopted the *17 Principles of Environmental Justice*, a key advocacy and policy document (Gosine & Teelucksingh, 2008). These principles served as a guide for organizing and networking with governments and NGOs. By June 1992, the principles were translated into Spanish and Portuguese and circulated at the Earth Summit in Rio de Janeiro. In September 2002, the United Church of Christ Commission helped organize the Second People of Color Environmental Leadership Summit in Washington, DC, with 1,400 participants, demonstrating the continued growth of the environmental justice movement (Bullard et al., 2008).

Today, EJ is a crucial element of environmental and public health policy in the United States, with all federal agencies required to address EJ issues at least until recently, when the Environmental Protection Agency was required to scrub any mention of environmental justice from its website (Environmental Data and Governance Initiative, 2025), though the landscape for environmental justice work is The EPA was the leading federal agency on EJ, focusing on fair treatment in planning and decision-making to ensure that no group bears a disproportionate share of environmental and health burdens. In the United States, environmental justice policy developed in direct response to civil society's concerns. In contrast, in other regions, EJ policy has emerged more recently and is largely driven by

intergovernmental agreements on human rights, which are increasingly viewed as vital for

achieving environmental sustainability (Stephens & Church, 2017). These rights encompass

the right to a clean and safe environment, the right to protect the environment, and the right

to access environmental information and participate in environmental decision-making. The

principles for these rights were established in the 1992 Rio Declaration on Environment and

Development and have been further implemented through international agreements such as

the 1998 Human Rights Act and the Aarhus Convention in Europe. The Aarhus Convention

aims to "contribute to the protection of the right of every person of present and future

generations to live in an environment adequate to his or her health and well-being" (UNECE,

1999).

Environmental Injustice in Canada

To grasp the context of environmental injustice in Canada, it is crucial to understand

the deep connection between Indigenous Peoples and their lands, territories, and

environment.

> To Indigenous peoples, land is not just physical and biological
> environment. The land is the ashes of their ancestors who fought to keep
> the land from becoming destroyed by others, the ancestors on whose
> shoulders we stand in this generation, land we must preserve for the
> next seven generations (Colomeda & Wenzel, 2000, p. 249).

Some Indigenous Peoples relate their spiritual connections to their environment through

ceremonies and acknowledgements of thanksgiving and gratitude. This connection to land is

also reflected in many North American Indigenous teachings. For example, Elisha King

(*Ieshonténhawe*) is a Bear Clan member of the Akwesasne nation. King's thesis research

entitled *OHWÉN:TSIA ENTSIONKWARIHÓN:NIEN* "*The Earth will teach us again*"

emphasizes how Onkwehónwe culture is connected to the land. An Indigenous teaching King shared in her research was shared responsibility with 'beings'.

In her words "A worldview of how we exist in the world, everything around us is a part of a relationship with us, water provides for us it's not just water, these things are beings" (personal communication, September 20, 2023). Thus, when discussing land and environmental issues in relation to Indigenous Peoples, it is essential to recognize that these concepts are deeply interconnected. This relationship is fundamental because it explains the deep spiritual, emotional, and physical ties Indigenous peoples have with their land.

Environmental injustice research in Canada examines dimensions that are deeply rooted in settler colonialism, which enforced structures on domination on Indigenous Peoples (Coates, 1999). Colonial legal institutions did not recognize nation-to-nation treaty relationships as agreements between two sovereign entities when interpreting various treaty clauses in court. Instead, these courts, as part of the colonial legal framework, viewed Indigenous nations as uncivilized and not 'truly' independent (Macklem, 2001). Since the onset of colonization, claims to Indigenous lands and territories were based on views widely held by European colonizers. These views included beliefs that Indigenous Peoples were not human, lacked Christianity and civilization, were inherently doomed to extinction, had no legitimate legal systems or concepts of property rights, and did not engage in land cultivation (Gosine & Teelucksingh, 2008). The ideologies of settler colonialism provided justification for land theft, allowing Canada to maintain its colonial authority and assert ownership over Indigenous lands and territories. In 1876, the Canadian government used these colonial ideologies in law through the creation of the Indian Act, one of the most enduringly racist and colonial pieces of legislation still in existence. The Act has driven a

program of social and cultural genocide against Indigenous peoples and institutionalized racism in Canada's relationship with Indigenous Peoples (Gosine & Teelucksingh, 2008). This racism continues to harm Indigenous communities and their lands and waters, as traditional ways of life are disrupted by economic development projects like logging, mining, and dam building (Colomeda & Wenzel, 2000). Over the last several decades, this colonial program has led to numerous cases of environmental injustice and racism across Canada. However, despite the history of settler colonialism, Indigenous Peoples' have continued to resist environmental harm to their lands and environment.

Dr. Ingrid R. G. Waldron, author of *There's Something in the Water: Environmental Racism in Indigenous and Black Communities* (2018), explores the history and health impacts of environmental racism in Indigenous and Black communities in Canada, with a focus on Nova Scotia as a case study. Waldron elucidates how environmental racism functions as a tool of settler colonialism, driven by the intersecting forces of white supremacy, power, and racial capitalism within white settler societies. By using Nova Scotia as a case study, Dr. Waldron has redefined the environmental justice narrative and movement in both Nova Scotia and Canada (Waldron, 2018). In her book, Waldron details various cases of environmental injustice, such as an open dump in Africville, landfills in Shelburne and Lincolnville, a pulp and paper mill at Pictou Landing First Nation, mercury contamination in Grassy Narrows First Nation, and the presence of over 60 petrochemical facilities around Aamjiwnaang First Nation.

Studies conducted over the last several years in Nova Scotia show how Indigenous and African Nova Scotian communities are more likely to be located near polluting industries

(Waldron, 2018). African Nova Scotians have lived in Nova Scotia for nearly three hundred years, making them the oldest Black community in Canada. They are descendants of African slaves, freed men, Black Loyalists from the United States, Nova Scotian colonists who settled in Sierra Leone, Maroons from Jamaica, and refugees from the War of 1812. Due to institutionalized racism during the early settlement of the province, most African Nova Scotians and other people of African descent still live in rural and isolated communities (Waldron, 2018). The isolation of these communities and their distinct jurisdictional status resulted in the government's failure to address environmental risks and their health impacts (Government of Canada, 2017). Africville stands out as a prime example and symbol of environmental injustice among African Nova Scotian communities. Africville, a former African Nova Scotian community in 1965, the City of Halifax initiated an urban renewal campaign that displaced Africville residents and took over their property. The area was then used for various environmental hazards, including a fertilizer plant, slaughterhouse, coal crushing plant and an open dump. Despite these challenges, Africville descendants continued to fight for justice. In November 2016, 300 former residents and their descendants applied for a class-action lawsuit against the city of Halifax over the loss of their land (Waldron, 2018). However, in 2018, a judge denied the application, ruling that the plaintiffs had not met the necessary requirements to certify the class action, preventing the case from moving forward (CBC, 2018). The impacts of colonialization also manifest in the federal and provincial government's failure to acknowledge its responsibilities to address land management and environmental protection issues, despite the fact it has the legal duty to do so under the Indian Act.

Similarly, Indigenous Peoples in other provinces have also experienced environmental injustices. The Aamjiwnaang First Nation, located near Sarnia, Ontario's "Chemical Valley," has faced ongoing air pollution from nearby industrial facilities such as oil refineries, power plants, and landfills. Chemical Valley, Canada's largest petrochemical complex, hosts over 60 facilities in a 25 km² area, contributing to increased rates of cancer, respiratory issues, and reproductive health problems among residents. The community's traditional fishing grounds in the St. Clair River have been heavily polluted, with around 10 tons of pollutants released through 32 major and 300 minor spills between 1974 and 1986 (Waldron, 2018). Similar examples can be drawn from across the country. Although there are rising rates of illnesses in Aamjiwnaang, government health authorities still attribute these health issues to the "lifestyle choices" of the community members, rather than environmental factors (Wiebe, 2016, p. 24).

These case studies highlight the strong link between the environment and the health of Indigenous and Black communities. Pollution and environmental damage have already negatively impacted their health and ecosystems. If decision-makers do not recognize and address the unique ways marginalized communities are affected, they fail to protect all Canadians. Health and environmental policymakers in Nova Scotia and across Canada need to adopt strategies that address the social, political, and environmental inequalities influencing the betterment for all African Nova Scotian, Indigenous, Black, and other racialized communities.

Different Definitions of Environmental Justice

Environmental justice can be categorized into three main types: distributive, procedural, and restorative. Distributive justice involves the fair and reasonable distribution of the costs and burdens associated with resource allocation, both among different societies and within diverse groups and communities within each society (Davodi-Far, 2009). Distributive justice plays a crucial role in achieving environmental justice, as it demands that the environmental risks and impacts within society are shared fairly. It involves the ethical allocation of both benefits and burdens such as wealth, opportunities, education, and environmental hazards like toxic waste and pollution among all members of society (Shrader-Frechette, 2002). The "water is a human right" citizens' initiative, launched in the European Union in 2013, serves as a strong example of how distributive justice can be legally implemented. The initiative seeks to challenge the consumerist perspective of water services, where wealthier individuals receive better services while those with fewer resources are left with poorer services. It emphasizes that "*water is a public good, not a commodity*" and mandates that governments ensure access to sufficient and clean drinking water and sanitation for all citizens (Right2Water, n.d).

Distributive justice aims to ensure that all members of society receive a "fair share" of benefits and resources. This concept considers criteria such as equity, equality, and need. Distribution based on need means that individuals requiring more resources receive accordingly, while those needing less receive less. Fair allocation of resources through distributive justice is essential for societal stability and the overall well-being of its members. This approach does not address the root causes of environmental harm, instead implying that such harm should be more equitably distributed.

However, the environmental justice movement advocates for a shift from a "not in my backyard" mentality to a "not in anyone's backyard" philosophy. The slogan "Not in Anyone's Backyard" has the potential to evolve from a long-held hope into a tangible reality, where legal frameworks address the pervasive environmental discrimination affecting vulnerable communities throughout Canada (Heiman, 1990).

Procedural justice focuses on ensuring that affected communities have a significant role in environmental decision-making. By guiding the development of policies and procedures, procedural justice supports distributive justice by shaping how environmental impacts and advantages are among individuals, nations, and future generations (IPCC, 2022). This form of justice mandates that decisions about whether to allow human activities that harm ecosystem services or to implement measures for their protection or restoration should include the participation of relevant stakeholders through established procedures (Aragão, Jacobs, & Cliquet, 2016). This active involvement enables local communities to voice their concerns, identify perceived injustices, and suggest preferred mitigation measures. Excluding the public – especially affected communities – from decision-making processes concerning ecosystem services constitutes procedural injustice. The Aarhus Convention, established in 1998, ensures that citizens have the right to "early public participation, when all options are open and effective public participation can take place" (UNECE, 1998, Art. 6, para. 4). If this right is not upheld, the public must have "access to a review procedure before a court of law and/or another independent and impartial body established by law, to challenge the substantive and procedural legality of any decision, act, or omission" (UNECE, 1998, Art. 9, para. 2). However, access to information often poses a significant challenge for

individuals or communities addressing environmental justice issues. People need information from scientists, industry, regulators, and legal advisors, which can be complex, costly, and hard for nonexperts to understand. For instance, African Nova Scotian communities often face a shortage of resources, political power, and representation compared to white communities, making them more vulnerable to the placement of potentially hazardous industries (Waldron, 2018). Lawmakers are typically more responsive to opposition from affluent, politically influential communities. Additionally, the lack of political representation in these communities often results in lower participation in decision- making processes related to facility siting and less awareness of policy decisions impacting their area (Fryzuk, 1996).

Restorative justice refers to "an approach to justice that seeks to repair harm by providing an opportunity for those harmed and those who take responsibility for the harm to communicate about and address their needs in the aftermath" (CICS, 2018). There is an urgent need to create effective responses to environmental damage, ones that not only halt ongoing destruction but also repair past harm and establish systems that honour ecosystems and future generations. Restorative justice offers a way to address the shortcomings of current environmental challenges, aiming to rectify harmful practices and prevent future damage (European Forum for Restorative Justice, 2020). The core principles of restorative justice, such as understanding harm relationally, encouraging participation, focusing on reparation, and fostering healing, are fundamental to the concept of environmental justice. The term "environmental restorative justice" encompasses both how environmental initiatives can support restorative justice and how restorative justice principles can be

applied to address environmental harm (European Forum for Restorative Justice, 2020). In cases of environmental damage, merely punishing the offenders is ineffective unless the harm is repaired, and measures are taken to prevent recurrence (Pali et al., 2022). As restorative processes lead to action plans focused on preventing or repairing harm and damage, their inclusive and participatory nature allows these plans to be both sustainable and innovative.

One example of a restorative process is the concept of 'sponge cities' in China. These cities are designed to absorb and treat runoff from urban surfaces like roads, buildings, and gutters, and then redirect some of this water back into river systems that require additional resources to thrive (Braithwaite, Forsyth, & Cleland, 2019). "A sponge city follows the philosophy of innovation: that a city can solve water problems instead of creating them. In the long run, sponge cities will reduce carbon emissions and help fight climate change," said Qiu Baoxing, a former vice-minister of housing and urban-rural development (Harris, 2015, para. 7). This innovative approach enables a more circular system for water use in agriculture, reducing the withdrawal from endangered river systems. It promotes greater recycling of waste, preventing it from contaminating rivers, and represents a restorative method for addressing environmental damage (Braithwaite, Forsyth, & Cleland, 2019).

Restorative processes can be utilized within harmed communities, between these communities and corporations, or between the government and activists. These processes can result in action plans or restorative agreements that outline various commitments to address or repair damaged environments. Potential outcomes of restorative practices for environmental harm may include apologies, restoration efforts, measures to prevent

future damage, compensation for victims, community service, and environmental training for company employees (European Forum for Restorative Justice, 2020). To effectively achieve restorative environmental justice, it is crucial for processes to align closely with environmental movements, as well as with generations of minority communities leading environmental defense, community activists and innovative scientists. Specifically, for Indigenous communities, it is ideal that restorative justice programs be developed and implemented by Indigenous governments, communities, and organizations, tailored to their needs and perspectives.

Strengths and Weaknesses of EJ Approaches

Environmental justice (EJ) approaches are known for their strong emphasis on equity, particularly in addressing the disproportionate environmental burdens faced by marginalized communities. By centering on the voices of those most affected, EJ frameworks promote inclusive decision-making processes that ensure policies and interventions are more responsive to the needs of vulnerable populations (Bullard et al., 2008). This participatory aspect of EJ not only empowers communities but also leads to more sustainable and effective solutions. Research shows that when community members are actively involved in environmental decision-making, the outcomes are often more just and equitable, as local knowledge and experiences shape policies that are both practical and culturally relevant (Schlosberg, 2007). For instance, Teixeira and Zuberi's (2016) study indicates that employing an EJ approach can be effective in directing programs and policies to address neighborhood

blight, offer support to help current residents stay in their homes (such as through tax relief), and improve the community's physical environment while preventing displacement (Teixeira & Zuberi, 2016).

While environmental justice approaches offer valuable solutions, they are often hindered by significant challenges, particularly in terms of implementation and enforcement. One of the primary weaknesses is the difficulty in translating grassroots activism and community input into actionable policy at higher governmental levels.

Often, EJ initiatives are met with resistance from powerful stakeholders, such as corporations and political entities, that have vested interests in maintaining the status quo (Pulido, 1996). Furthermore, the lack of a standardized framework for measuring and addressing environmental injustices can lead to inconsistent application of EJ principles across different regions, weakening the overall impact of these approaches (Walker, 2009). An example of environmental justice approaches being hindered by policy implementation and enforcement can be seen in the case of the Flint water crisis. The Flint water crisis, a public health disaster between April 2014 and June 2016, stemmed from the city's decision to switch its water source from Detroit's water and sewerage system to the Flint water source to reduce costs. However, the water was not properly treated or tested, leading to severe water quality problems and health hazards for Flint residents. Researchers linked 80% of outbreaks of Legionnaires' disease to the Flint water source (Ruckart et al., 2019). Despite extensive grassroots activism and significant national attention, the response to the crisis was delayed, with government officials at all levels largely overlooking the issue. As a result, systemic problems persisted unresolved for years. "The effective silencing of Flint citizens enabled the development, progression, and perpetuation of the water crisis" (Jacobson et al., 2020, p.571).

The local and state government's failure to implement and enforce policies to protect Flint's predominantly Black and low-income residents highlighted the challenges of turning community demands into meaningful action. The Michigan Civil Rights Commission's report highlighted that nearly half of Michigan's African American population had experienced emergency management, in contrast to fewer than 10% of the state's overall population. The Governor's Task Force Report, along with other evaluations of the crisis, has identified that implicit bias and systemic racism influenced the application of laws in Flint. These findings led to the "inescapable conclusion" that the Flint water crisis represents "a clear case of environmental injustice" (Jacobson et al., 2020, p. 571). This case illustrates how environmental justice efforts can be stymied by political and bureaucratic barriers, leaving vulnerable communities without adequate protection.

Participatory Action Research

A second literature that this thesis engages in is Participatory Action Research (PAR). PAR is described as a joint effort combining research, education, and action, all aimed at driving social change (Nelson, Hiner, & Rios, 2009). PAR embodies procedural justice, striving to amplify community voices in environmental discussions. It operates on the belief that those who have been most marginalized or oppressed possess unique and insightful knowledge about the history, impacts, and weaknesses of unjust social systems (Nelson, Hiner, & Rios, 2009). PAR is dedicated to making the research process more democratic, prioritizing knowledge from marginalized perspectives, and beginning investigations with lived experiences. It values the insights gained through collaborative

action, demands that scholarship be responsible to the communities it impacts, and has the

potential to support social change movements (Cahill, 2007).

PAR has two primary origins: one rooted in the Global South, particularly in South

America, and the other in the Global North, predominantly in Anglo-North America

(Chesnay, 2014). The Southern strand of PAR emerged from a foundation of critical theory

and social activism, driven by influential figures like Brazilian educator Paulo Freire and

Colombian sociologist Orlando Fals Borda. These pioneers envisioned PAR as a tool for

social change, focusing on the empowerment of marginalized groups such as peasants,

workers, ethnic minorities, and disabled persons who were oppressed by political and

economic systems. Fals Borda's work in Colombia drew global attention, bringing together

scholars interested in the transformative potential of PAR. In Brazil, Freire's approach,

particularly through his development of *popular* or *critical educatio*n, sought to create a

*critical consciousne*ss among the poor peasants, enabling them to read and understand legal

documents, thus empowering them to advocate for their rights. This process not only

facilitated literacy but also fostered awareness and a sense of agency among participants,

making PAR not just a method but a movement aimed at altering social structures (Freire &

Ramos, 2009; Chesnay, 2014).

In contrast, the Global North tradition of PAR, which emerged earlier, was more aligned

with conventional action research and was less radical and politically charged than its

Southern counterpart. The Northern strand is often associated with psychologist Kurt Lewin,

who first coined the term "Action Research" (Lewin, 1946). Lewin believed that research

should have practical applications, particularly in driving social action, and his work focused

on improving intergroup relations by exploring the impacts of social class, politics, and economics on behavior. Unlike the Southern strand, which was deeply embedded in the struggle for social justice, Northern PAR has been more moderate, emphasizing the practical use of research for societal improvement rather than radical change (Chesnay, 2014). Together, these two strands illustrate the diverse approaches to PAR, with the Southern strand pushing for transformative social change and the Northern strand focusing on the practical application of research to improve social conditions. Both traditions highlight the potential of PAR to bridge the gap between theory and practice, ultimately driving meaningful change in various social contexts.

The PAR process is cyclical. Researchers and participants first identify an issue or situation that requires change, then initiate research that leverages existing capabilities and resources to drive relevant action. Both groups reflect on and learn from this action, leading to a new cycle of research, action, and reflection. It starts with "'the understanding that people— especially those who have experienced historic oppression— hold deep knowledge about their lives and experiences, and should help shape the questions, [and] frame the interpretations' of research" (Torre & Fine, 2007, p. 458).

Together, they develop methods tailored to their specific context, which may involve adapting traditional social science techniques such as semi- structured interviews, focus groups, and Geographic Information Systems (GIS), or employing innovative visual methods like photos, videos, and drawings (Nelson, Hiner, & Rios, 2009).

Participatory approaches are valued for their ability to enhance participant control over the creation and application of knowledge, as well as their potential to support learning through reflection and action (Foster-Fishman et.al., 2005).

At the heart of PAR is Community-Based Participatory Research (CBPR), which involves creating mutually beneficial partnerships with communities. In this approach, community members are actively involved, and their voices are integral, making them co-researchers who help direct the research process. CBPR emphasizes the importance of having research participants significantly engaged, particularly as co-researchers and collaborators (Lykes, 2017). As Cahill notes, "Participatory action research is a collaborative approach in which those typically 'studied' are involved as decision-makers and co-researchers in some or all stages of the research" (Cahill, 2007, p.268). This framework supports the notion that PAR participants are co-creators of knowledge, contributing meaningfully to the research process (Balcazar, 2020).

Research Relationships

Including individuals with lived experience is essential at every level of research. Boylorn (2008) defines lived experience as the:

> representation and understanding of a researcher or research subject's human experiences, choices, and options and how those factors influence one's perception of knowledge… [it] responds not only to people's experiences, but also to how people live through and respond to those experiences…Lived experience seeks to understand the distinctions between lives and experiences and tries to understand why some experiences are privileged over others (p. 490).

Historically, individuals with lived experience have often been relegated to passive roles as service recipients, subjects of policy decisions, or research subjects. However, to foster genuine transformative change, the involvement and leadership of those with lived experience are crucial in shaping systems, research, policies, practices, and programs at every level.

Indigenous Peoples have preserved knowledge, data, and insights over centuries, rooted in lived experience and passed down through generations. "Nothing about us without us" is a phrase commonly used to acknowledge the distinct nature and lived experience of First Nations, Inuit and Métis that cannot be research *about*; instead, research should be co-led and designed with Indigenous peoples (Indigenous Services Canada, 2023). Despite researchers' good intentions, neglecting the uniqueness of each Indigenous nation and interpreting results without their active involvement risks perpetuating harmful practices and policies that oversimplify and aim to assimilate these diverse communities (Marsden, Star, & Smylie, 2020). Engaging Indigenous Peoples with lived experience enriches the relevance and accuracy of research, ensuring that their voices are central to the narrative. Moving forward, writing about Indigenous communities without their consent or involvement, especially in negative or stigmatizing ways, must become a thing of the past. As many Indigenous communities emphasize, "We need to be researched back to life; being researched to death was never our choice" (Marsden, Star, & Smylie, 2020, p.823). Recognizing lived experience as valid and respecting the ancestral knowledge passed down through generations can lead to meaningful partnerships in research relationships.

In research relationships there can be inherent power imbalances between researchers and participants. Castleden defines "balancing research power" as "researchers and their research partners/participants sharing control of the research process and outcomes" (Castleden et al., 2008, p. 1394). A crucial first step in addressing and balancing research power is to recognize that participants are the true experts of their own lives. Acknowledging the inherent power dynamics in the researcher-participant

relationship requires researchers to articulate how the research impacts both the researcher and the participants and ensure that participants are recognized as true experts whose voices are fully represented (Suarez-Balcazar et al., 2016). An example of addressing these power imbalances is evident in Balcazar's work with Latinx families with youth who have disabilities. In this project, mothers, community leaders, and staff from a non-profit organization were meaningfully engaged. After a year of conducting focus groups to identify health concerns and social and economic determinants related to high obesity rates in this community, a healthy lifestyle program called *Familias Saludables* (Healthy Families) was co-developed. By involving community partners as co-producers of knowledge, the power dynamics were more balanced. Throughout the process, researchers created an environment of co-learning and co-creation by working alongside participants over an extended period, compensating them for their contributions, and treating them as partners while valuing their input on how to best promote their health. When researchers establish genuine partnerships with communities, they acknowledge that participants are experts in their own lives, leading to a collaborative process where knowledge is co-created, with community members guiding the understanding of their own realities. This concept naturally extends to the idea of participants as co-researchers, where communities actively become co-creators of knowledge through meaningful engagement in research.

Photovoice

Photovoice, the key methodology in this research, embodies the principles of PAR. As mentioned above, Drs. Caroline Wang and Marianne Burris are often credited

as the pioneers of photovoice. Their innovative work with Chinese migrant women in the realm of international development marked the beginning of utilizing photography and visual imagery as research tools (Wang et al., 1996). Photovoice is a participatory, action- focused research method that views participants as co-researchers and aims to translate findings into practical actions, such as policy changes or health initiatives (Wang & Burris, 1997). This approach is grounded in problem- based and contextual pedagogy, which produces practical knowledge aimed at fostering action (Breny & McMorrow, 2021). By redefining participants as co-researchers and capturing their lived experiences, photovoice is particularly effective in revealing the underlying factors of social and cultural inequities. The insights gained from photovoice can help action-oriented researchers develop programs or policies that address these inequities and promote social justice.

Wang and Burris identify three core theoretical foundations of photovoice. The first, documentary photography, is based on the idea that providing individuals with cameras empowers them to document their surroundings and drive community change. The second is rooted in Paulo Freire's (1970) theory of critical consciousness, which encourages people to critically assess their historical and social circumstances (Freire & Ramos, 2009). The third foundation, feminist theory, seeks to empower marginalized populations, value experiential knowledge, address issues of masculine power and representation, and recognize local expertise that might otherwise be overlooked (Wang & Burris, 1994). A solid understanding of these frameworks is crucial for those employing photovoice to recognize its significant potential in amplifying the voices of marginalized groups.

Photovoice is fundamentally a participatory research method grounded in Freirean principles (Wang & Burris, 1994). Paulo Freire, a Brazilian educator and philosopher shaped by his own experiences with poverty and hunger, developed a problem-based pedagogy, which emphasized learning through dialogue, using images as conversation starters (or codes). These dialogues not only helped farmworkers learn Portuguese but also empowered them by fostering an understanding of their societal position and potential for change, leading to their critical consciousness (Freire & Ramos, 2009). The initial goals of photovoice, as defined by Wang and Burris (1997), are closely connected to social justice and are framed within a Freirian approach to problem-posing education. The method aims to use images and discussions to inspire social action (Wang & Burris, 1997). The objectives are to: "(a) allow individuals to document and reflect on their community's strengths and issues, (b) foster critical dialogue and awareness about key issues through group discussions of the photographs, and (c) influence policymakers" (Wang & Burris, 1997, pp. 372-373). While not all photovoice projects manage to engage policymakers, achieving this goal is crucial for making a significant impact on social justice. For instance, if a photovoice project involves homeless individuals in a city and their experiences are presented to the local city council, it could potentially lead to policy changes that improve economic and mental health services for this population.

Photovoice, rooted in Freirean principles, is particularly suited for revealing the lived experiences of individuals and communities who might not have a voice in conventional research methods. It goes beyond mere participation, offering a platform for people to convey aspects of their lives through visual representation, capturing aspects that words and data alone may not express.

Photovoice has been extensively applied within feminist research frameworks to empower marginalized groups and foster positive change, with evidence indicating its effectiveness in engaging those in positions of authority (Castleden et al., 2008). Feminist research recognizes women as experts on their own experiences, allowing them to "construct their own knowledge about women according to their criteria as women, and to empower themselves through knowledge making" (Wang & Burris, 1994, p. 174). For instance, Photovoice has been utilized with a variety of vulnerable groups, including the homeless, senior citizens, immigrant women, mothers with learning disabilities, and people living with HIV/AIDS (Castleden et al., 2008), all of whom use the method to drive change within their communities.

Photovoice seeks to alter existing power structures by providing cameras to individuals who typically lack access, thereby empowering them to document their own experiences and become active agents of change within their communities (Wang, 1994). The insights gained from photovoice can help action-oriented researchers develop programs or policies that address these inequities and promote social justice. While photovoice may not always generate entirely new information, its primary value lies in providing fresh perspectives and a deeper understanding of community issues from the community's own viewpoint.

Photovoice in Environmental Justice Projects

Photovoice has been utilized as a means of both supporting and honoring Indigenous Peoples' deep ties to the natural world, while also documenting their experiences with

environmental changes and injustices. This approach has proven to be a powerful way for researchers to gain insight into Indigenous values, knowledge, and concerns that might otherwise be overlooked by traditional research methods (Maclean & Woodward, 2013). In Canada, First Nations leaders initiated a photovoice research collaboration to better understand environmental and health risks in the Huu-ay-aht territory (Castleden, et al., 2008). In April 2005, the Huu-ay- aht First Nation held a symposium to discuss their past, present, and future needs for cedar, a sacred resource.

Environmental changes, impending treaty settlements, and community concerns about resource degradation heightened the urgency of these discussions. In response to these community-identified needs, a community-university research partnership was formed. Both elected and hereditary Huu-ay-aht leaders agreed to collaborate with a PhD student from a Canadian university to explore environmental and health risks in their traditional territory.

Community members were asked to photograph places and activities that represented environmental and health risks or their absence. This process of photographing and discussing the images allowed for individual perspectives to be validated at the community level and sparked dialogue and action on critical environmental and health issues. The photovoice project successfully balanced power dynamics, fostered research ownership and trust, built capacity, and respected the cultural preferences of the community (Castleden et al., 2008). This study, along with others (Beck et al., 2020; Carlson, 2016; Datta, 2018; Tobias et al., 2013), demonstrates that photovoice is an effective tool for addressing Indigenous environmental concerns in a way that is participant-centered and community-driven, allowing issues and solutions to be defined by and for the community members

themselves. It offers Indigenous communities a powerful method for documenting and communicating their concerns about environmental change and injustice. Despite the constraints they face due to limited resources and marginalization, this tool empowers Indigenous groups to amplify their voices and engage the broader public, potentially driving action on critical environmental issues affecting their communities.

Photovoice is increasingly being explored globally, with a growing number of innovative projects emerging across the United States. Brickle and Evans-Agnew (2017) employed photovoice to engage ten youth in a Pacific Northwest community in addressing woodsmoke pollution. By involving the youth in capturing their experiences and perceptions of woodsmoke exposure through photography, the project empowered them to draw attention to the health effects on their community and advocate for improved air quality policies. The youth demonstrated an awareness of the strength found in collective action and collaboration, often emphasizing the importance of unity with phrases like "we is greater than me" and "people coming together to make a change" (Brickle & Evans-Agnew, 2017, p. 96). This study adds to the emerging research on how photovoice can empower youth, enhancing their critical awareness, driving them to take action, and giving them a framework to articulate their concerns. By documenting air quality issues in their own homes, these young researchers developed a sense of identity and confidence in their capacity to effect change, with some even expressing aspirations to pursue careers in science.

Similarly, Buzzard Point in Washington, DC, exemplifies urban environmental injustice, grappling with severe pollution from benzene, arsenic, formaldehyde, and nitrous oxides (NOx), which contribute to cancer, asthma attacks, and premature death

(Aber et al., 2017). The neighborhood's residents have been marginalized as development projects have continued to encroach on their community, further degrading their living conditions and stripping away environmental amenities. In response, a photovoice project was implemented to empower Buzzard Point residents by allowing them to document and communicate the health hazards they face (Aber et al., 2017). Despite ongoing adverse effects from industrial activities, stadiums, and environmental degradation, photovoice provided a platform for the community to voice their concerns, identify critical issues, and collaborate on community-driven solutions. This project highlights the importance of community involvement in photovoice projects addressing and mitigating the impacts of environmental injustice.

Rosa McBee's thesis (2021), *Building Social Connections: Evaluating NeighbourPLAN's Participatory Planning Initiative for Increased Participant Connectedness in Peterborough/Nogojiwanong, Ontario*, adds to this growing body of research by examining the role of photovoice in fostering social connectedness within marginalized communities. In collaboration with GreenUP's NeighbourPLAN initiative, residents photographed their neighbourhood connections and disconnections. Participants photographed accessible spaces, green spaces, and institutional barriers to discuss community needs and goals. Photovoice empowered residents by validating their perspectives and strengthened their sense of belonging and collective identity, McBee found. Her work aligns with Indigenous and urban environmental justice photovoice studies by showing how participatory visual methods can amplify marginalized voices, bridge stakeholder gaps, and advocate for equitable change. McBee's study shows photovoice's potential for community-driven planning and social

transformation in Peterborough/Nogojiwanong, highlighting its value in participatory research and environmental justice.

Conclusion

The overarching aim for my research is to bridge the gap between the Peterborough/ Nogojiwanong community and academia by documenting the lived experiences of community members facing environmental and social vulnerabilities through a photovoice project. Photovoice offers a unique and powerful methodology for exploring social justice issues, particularly those impacting Indigenous communities and environmental justice. By allowing participants to express their perspectives through photography, this method not only captures their experiences but also fosters a deeper engagement with the issues at hand. The integration of PAR into my study enhances the relevance and effectiveness of this approach. PAR emphasizes the collaboration between researchers and participants, acknowledging that those with lived experiences are the true experts of their own lives. This principle aligns closely with the goals of photovoice, which actively involves community members in the research process, ensuring their voices shape the outcomes and solutions. By centering community voices and experiences, my research aims to contribute to a more nuanced understanding of environmental and social issues, leading to more effective policy and practice. Through this approach, I hope to enhance both academic knowledge and the practical application of findings, ensuring that the research supports the Peterborough/Nogojiwanong community in addressing their challenges more effectively.

Chapter 3: Research Methods

Introduction

In the present study, photovoice was used to provide a forum for participants—residents of the Peterborough/Nogojiwanong community—to document and reflect on the elements of the community that influence health and well-being, to promote critical dialogue and knowledge about community issues, and to develop a grounded theory of socio-environmental factors that facilitate or hinder a healthy community environment. Results from this study provide a grounded theory of the social dynamics perceived to influence environmental and social vulnerability among residents of Peterborough/Nogojiwanong. This chapter is organized into four sections, each designed to showcase the progression of the research from its initial conceptualization to its practical application and dissemination within the community. The first section delves into the methodology, focusing on the grounded theory framework that guided the research approach. Following this, I will examine the use of photovoice as a research method. The subsequent sections will cover the recruitment of participants, photovoice training and orientation, the facilitation of the photovoice sessions and coding of the photographs.

Grounded Theory

Grounded theory is a systematic method of conducting research that shapes data collection and provides explicit strategies for analyzing them (Charmaz & Thornberg, 2021, p.305). Grounded theory is defined as the discovery of theory from data

systematically obtained from social research (Glaser & Strauss, 1967, p.2). The focus of the

methodology is on exploring integral social relationships and the behavior of groups where

there has been little exploration of the contextual factors that affect individuals' lives

(Crooks, 2001). Grounded theory methodology centers on investigating key social

relationships and group behaviors, particularly in contexts where there has been limited prior

examination of the environmental, cultural, or social factors that shape individuals'

experiences. It allows for a deeper understanding of how people interact within their social

environments, uncovering patterns and dynamics that may not have been previously

considered. This approach is especially useful when exploring under- researched areas, as it

emphasizes the discovery of insights directly from the data, rather than fitting the data into

preconceived theories.

History of Grounded Theory

The concept of grounded theory was created by American sociologists Barney G. Glaser

and Anselm L. Strauss. Glaser and Strauss developed grounded theory by reflecting on their

own research choices, particularly in their examination of hospital procedures and practices

for handling terminally ill patients. The researchers analyzed how these patients coped with

the knowledge of their impending death, as well as the reactions of the medical staff caring

for them. During this process, Glaser and Strauss questioned whether the traditional scientific

method of verification was appropriate for this kind of research. It was through this study that

they developed the constant comparative method—a key feature of grounded theory—and

first introduced a theory of dying in their work *Awareness of Dying* (Glasser & Strauss, 1965).

They later introduced the methodology in their 1967 book titled *The Discovery of Grounded Theory: Strategies for Qualitative Research* that explained how to generate theory that emerged from participant reflections rather than being established in advance. In their book, the authors argued that grounded theory challenges the notion that only quantitative research—or even traditional qualitative methods—are the most valid or objective ways to uncover truths. Instead, they advocated for an approach where theory develops organically from the data, allowing for a more flexible and participant-centered exploration of social dynamics.

Ethnographers in the 1960s frequently encountered a lack of depth and richness in their data. Glaser and Strauss argued that an iterative process of data collection and analysis would enable researchers to progressively identify the most critical issues within their field of study. Grounded theory's approach of conducting data collection and analysis concurrently allows for the ongoing development of key concepts, with additional data serving to further elaborate these emerging ideas. Glaser and Strauss strongly opposed the traditional ethnographic approach of separating data collection from analysis, advocating instead for a systematic interrogation of data throughout the research process. This continuous engagement with the data ensures that early insights inform subsequent data collection, leading to a more nuanced and conceptually robust understanding of the research subject (Charmaz & Thornberg, 2021).

Grounded theory has evolved into three distinct methodological genres, each offering a different approach to the original work developed by Glaser and Strauss. The first genre, Traditional Grounded Theory, is closely associated with Barney Glaser and focuses on the

emergence of theory from the data. In this approach, researchers use existing theories to challenge and refine the theory that emerges from the data, ultimately situating it within the broader body of knowledge (Heath, 2006). Glaser emphasized that traditional grounded theory is not meant to replace other research methods but rather to complement them, offering a valuable tool within the research community. The emphasis in traditional grounded theory is on allowing patterns and concepts to emerge organically from the data without any preconceived questions guiding the process (Hernandez & Andrews, 2012).

The second genre, Evolved Grounded Theory, is often referred to as Straussian grounded theory due to the contributions of Anselm Strauss, Juliet Corbin, and Adele Clarke. This approach is rooted in symbolic interactionism, a sociological perspective that examines the symbolic meanings people attach to social interactions, behaviors, objects, and events. Unlike Glaser's traditional approach, Strauss argued that the Straussian method should be considered a new and distinct approach rather than a modification of grounded theory. Symbolic interactionism plays a critical role in Straussian grounded theory by focusing on how individuals' subjective interpretations influence their behaviors and social interactions, making it an essential framework for understanding the complexities of social life (Chun Tie et al., 2019).

The third genre, Constructivist Grounded Theory, was developed by Kathy Charmaz and is based on the principles of constructivism. In contrast to Glaser's view that theories are discovered, constructivists believe that theories are generated through the research process. Charmaz emphasized that both "constructionism" and "social constructionism" are central to this approach, with the former focusing on individual meaning-making and

the latter on collective social interpretations. In constructivist grounded theory, the researcher starts with specific questions in mind and conducts a literature review early in the research process to determine what has already been done in the area of interest (Evans, 2013). This method acknowledges that the researcher's perspective plays a role in the construction of the theory, emphasizing reflexivity and the co-creation of knowledge between researcher and participants.

Suitability for the Study

This method was fitting for this study as it seeks to deepen insights into human experiences shaped by social dynamics, structures, and interactions, while also offering direction for future environmental justice efforts in smaller cities, which have been largely understudied (Corbin & Strauss, 2015). *"Grounded theory tells us what is going on, tells us how to account for the participants' main concerns, and reveals access variables that allow for incremental change.

Grounded theory is what is, not what should, could, or ought to be"* (Glaser, 1999, p. 840). Grounded theory research seeks not to simply understand, but to build a theory that explains the phenomenon of interest. Theory is considered "grounded" because it is anchored in the words and experiences of the participants. As a researcher, this approach enables me to start with the unique narratives of each participant and, through the analytic process, deconstruct and reconstruct their stories to collectively represent the experiences of all participants. Ultimately, this method allows the voices of participants to play a crucial role in shaping theory development.

Advantages of Grounded Theory

Grounded theory offers the researcher the benefit of a comprehensive approach to a study by collecting, analyzing, and interpreting data to develop a theory that conceptually explains human experiences. Grounded theory provides social justice researchers with a method to drive change by tackling issues related to oppression, privilege, and power imbalances. This methodology is particularly effective in generating a theory grounded in interconnected themes that reflect the lived experiences of community members grappling with environmental and social vulnerabilities, as demonstrated in this photovoice project. The researcher can investigate power imbalances through the perspectives of participants, giving marginalized individuals a platform to share their viewpoints. This approach offers detailed descriptions and insights into actions, helping to better understand social dynamics that not only adds to the body of social justice research and influences practices and policies that are essential for driving change (Charmaz, 2006).

Grounded theory also seeks to comprehend reality through the perceptions individuals attach to specific contexts or objects, facilitating knowledge generation and enhancing understanding. It explores "the individual's relationships between individual perceptions, collective action and society" (Annells, 1996, p.387). Researchers can immerse themselves in the participants' world, observing their surroundings and gaining insight into their interactions and interpretations from the participants' perspectives. It employs a qualitative investigative framework that extracts significant elements from the experiences of social actors, enabling researchers to construct robust theoretical frameworks and contribute to the advancement of knowledge (Glaser, 1967).

Community-Based Participatory Research

This research is also rooted in community-based approaches but takes place in a small city that has multiple communities and identities. Community-based participatory research (CBPR) centers on engaging participants and their communities directly in generating knowledge, with a goal of fostering equity throughout both the research process and its outcomes (Minkler & Wallerstein, 2003). Unlike traditional research, which often relies on external "experts" to gather, analyze, and apply information with limited community input, CBPR adopts an anti-oppressive stance by involving those most affected by the issue at every research stage (Minkler & Wallerstein, 2003). In this participatory model and aligned with grounded theory, community members are considered the primary experts on their own experiences and are integral to all phases of the project—defining the problem, designing the study, collecting and interpreting data, and sharing findings (Israel et al., 1998). It's important to note that this research was not confined to a single community, nor did it follow a traditional community-based research approach. Rather, it employed a participatory framework, engaging a diverse group of participants from various social networks and organizations such as Community Race Relations Committee of Peterborough, Kawartha World Issues Centre, GreenUP, Research for Social Change Lab, and the New Canadians Centre.

This collaboration blends the knowledge of external researchers with the lived expertise of participants, creating a richer, more nuanced understanding of the research issues (Stoecker, 1997). In CBPR, researchers act as facilitators and collaborators, working in close partnership with the community throughout the study (Williams & Brydon-Miller, 2004). This

research is a true embodiment of CBPR, as it aims to actively involve the participation of marginalized residents in Peterborough/Nogojiwanong in all phases of the research process (Brush et al., 2020). Instead of simply conducting research about these communities, the study is conducted with and for them. Participants are involved from the identification of key environmental concerns to the interpretation of their photographs that aid in data analysis.

Indigenous research methodologies center relational knowledge, respect for lived experience, and the importance of storytelling. Storytelling through oral traditions and visual arts has been a method used by the Indigenous Peoples in Peterborough/ Nogojiwanong for generations to document environmental and cultural change but also to assert their rights (Suprapto et al., 2020). Photovoice as a mode of storytelling an enabling and culturally relevant medium in the representation of experiences for Indigenous people and other marginalized groups. In this way, photovoice and principles of CBPR positions community knowledge to be valued and elevated within the research process.

Grounded Theory using Photovoice

This study employs a qualitative research design that integrates grounded theory with the photovoice method. Photovoice, a participatory action research approach, empowers participants to take control of the narrative by using cameras to document, discuss, and share their lived experiences within their communities (Wang & Burris, 1994). This method fosters critical reflection, enabling individuals to develop a grounded theory of their realities, share valuable insights with key stakeholders, and advocate for meaningful change. An

understanding of grounded theory enables the identification of themes and issues that arise

from the photovoice discussion sessions. By utilizing grounded theory techniques, we aimed

to construct a conceptual framework that captures the social and psychological processes

influencing the perceptions and responses to the lived experiences of participants. This

approach helps pinpoint where action is needed and connects real-world experiences with

practical solutions, making it easier to apply theory in meaningful ways. Combining

photovoice with grounded theory enables participants to share their views to enhance

decision-making. Instead, it empowers them to suggest strategies and actively participate in

developing interventions that are tailored to the specific conditions of their social context.

This project integrates photovoice and grounded theory techniques, drawing inspiration

from López et al.'s photovoice study on African American breast cancer survivors in rural

eastern North Carolina (López et al., 2005). In this project, I integrated grounded theory as

both a methodological and analytical approach to guide the use of photovoice. Grounded

theory allowed me to remain open to the insights and priorities of participants, rather than

imposing pre- existing frameworks onto their narratives. As participants captured and shared

images reflecting their lived experiences with environmental injustice, I engaged in an

iterative process of coding and constant comparison, identifying emerging themes directly

from the data. This grounded approach aligned with the participatory nature of photovoice,

as it honoured participants' voices and perspectives as central to the development of theory.

Through this process, I was able to generate insights that were not only rooted in the

community's lived realities but also actionable highlighting key areas for intervention and

informing policy recommendations. In doing so, grounded theory helped bridge the gap between participants' experiences and broader social and environmental injustices.

Data Collection and Analysis

Data collection is particularly dynamic in photovoice-enhanced grounded theory, whereby participants take pictures and narrate experiences to actively contribute to the construction of research. In most photovoice studies, participants are usually requested to photograph aspects of their lived experience that are of great importance to them, including in relationship to environmental justice or social vulnerability, and asked to give narratives for meaning into the photos taken. It links visual and textual data in such a way that the research gets enriched through depth in context and understanding of participants' perspectives (Mooney & Bhui, 2023). One of the greatest strengths of photovoice is how it empowers marginalized communities through creative expression in ways that might not be captured by more traditional methods of research, such as interviews or surveys. This is done so that participants can elaborate on how they feel about their lived realities, thus adding their voice to the development of collective knowledge and making a more meaningful contribution to research and social change and environmental justice through inclusion. Allowing participants to decide what they choose to photograph and share personal experiences through stories behind them, Photovoice compiles data directly from their experiences so that the participants themselves become more personally connected to the discussion of research matters.

Once data have been collected, coding is the next important step in the analysis of grounded theory; coding segments of visual and textual data are categorized and labeled

in order to identify recurring themes and patterns. Researchers may collaborate in the coding process with participants, bearing in mind that the codes reflect the participants' perspectives and not the researcher's preconceived ideas (Vollstedt & Rezat, 2019).

Generally, coding is done in three phases in the process of generating theory: open coding, axial coding, and selective coding. These are discussed below.

Open Coding: In the first stage of the process, known as open coding, the data are broken down into smaller units such as key phrases, ideas, or recurring concepts and labels are assigned to specific elements of the photographs and accompanying narratives (Breny & McMorrow, 2021). However, the first round of coding for this research project, participants themselves engaged in open coding by identifying key themes, words, and ideas within their own photographs and narratives, laying the foundation for collaborative analysis and grounded theory development.

Axial Coding: In axial coding, the researcher begins to create initial codes into categories or themes concerning the relationships and likeness between them. It involves bringing out the links that exist between different data elements and refinement of the initial codes toward more cohesive themes (Vollstedt & Rezat, 2019). For instance, pictures of water pollution, soil contamination, and industrial emissions might fall under a larger category like "environmental contamination." The purpose of axial coding is to allow researchers to move beyond face-value observation to examine deeper linkages in the lives of participants (Corbin & Strauss, 2015).

Selective Coding: The final stage of coding, selective coding, involves a focus on an overriding central theme or storyline to the various categories created in the axial coding stage. This theme represents the concern or insight coming from the data (Glaser

& Holton, 2023). For instance, in a photovoice project related to environmental justice, a central theme could be disproportionate exposure to environmental hazards within the context of marginalized communities. In selective coding, the data are synthesized, and a theory or narrative is articulated that reflects the participants' experiences.

Throughout the coding process, researchers engage in deliberation about voices from participants regarding how well their codes and themes represent participant voices. Similar to other photovoice studies, in this project participants were invited to review initial codes and offer feedback. Their comments helped ensure that the analysis remained grounded in their lived experiences and perspectives. This collaborative approach aligned with the core principles of both photovoice and grounded theory centering participant and researcher collaboration and co- constructing knowledge.

Theme Development in Photovoice Research

Once the coding process in photovoice research is complete, the researcher goes through an iterative process of theme development in which the essential insights and patterns emerging from the data are identified and refined. These themes are meant to encapsulate core participant concerns and provide an intimate view of their experiences. In grounded theory, theme development is not a single act but rather develops as the analysis develops to ensure that final themes are representative of the participants' standpoint (Tsang, 2020). In most photovoice projects that draw upon both visual and textual data, the emergent themes are usually synthesized into an overarching narrative to help the researcher identify some substantial insights from images and stories that participants have given.

This process also allows a researcher to explore relationships across themes and categories, which may be useful in the development of an overall understanding of data. For instance, themes of "unsafe living conditions" and "lacking access to clean water" may overlap with themes of "resilience" or "government neglect," showing an interaction of sociocultural and environmental factors (Brickle & Evans-Agnew, 2017). By relating these themes, researchers are able to indicate not only individual experiences but also shared patterns across participants, enhancing generalizability (Tsang, 2020).

Environmental justice research analysis begins by understanding the issues that affect the disadvantaged population before developing a broader understanding of systemic problems. This approach allows researchers to co-develop practical, community- informed solutions that address shared needs and promote long-term change (Bullard, 2000; Waldron, 2018).

Role of Coding in Identifying Patterns and Organizing Insights

Coding is a crucial component of grounded theory analysis, enabling researchers to identify patterns within complex data and establish a well-organized framework for further interpretation. The process of photovoice research, which combines visual and textual information, benefits from coding because researchers can meaningfully categorize and label data points to achieve valid interpretations. The linking of these themes across the photos to their stories through the coding of their visual and narrative elements enables the researcher to go much deeper and more fully understand the experiences (Mooney & Bhui, 2023). For instance, a picture showing industrial pollution may be contextualized through a story about

its health consequences; thus, via the use of visual and textual data, the whole spectrum of the issue may be explored. More so, coding enables the researcher to highlight facets that might not be noticed, and which give new light to a deeper understanding. For instance, in research related to environmental vulnerability, through coding, one might observe repeated themes as to how participants link pollution with mental health problems (Qureshi & Ünlü, 2020). Such unforeseen patterns thus expand interpretative possibilities toward the physical and psychic impacts of environmental degradation. Segmenting data into high-level themes helps the researchers connect the dots within the data and also provides a narrative behind actionable fixes. This helps keep participant voices as a central pillar of the research and ensures that their insights guide interpretation, policy, community responses, and future research on the issue.

Therefore, photovoice involves data that is highly grounded in the participants' experience, and thus, its analysis lends itself to grounded theory research. It involves coding and theme development, which can help to identify patterns and organize insights, and it helps to ensure the findings are relevant and reflective of the perspectives of participants (Braithwaite et al., 2019). Photovoice informed by grounded theory analysis can support inclusive and participatory research based on the idea that participants can represent their realities. It provides an understanding of the struggles of marginalized groups and can guide policy and intervention that may be required for such groups.

Data Analysis Strategy for Photovoice

Effective photovoice data analysis involves integrating both researcher and participant interpretations, ensuring that multiple perspectives are acknowledged and valued in the meaning- making process (Ciolan & Manasia, 2017). This approach involves treating participants' photographs and narratives as core data, which helps avoid distorting their views and supports the development of meaningful theoretical insights.

As Oliffe et al. (2008) highlight, researchers often face challenges in using both the photographs and narratives provided by participants to construct theoretical understandings of the studied phenomenon. To address this, I employed a strategy grounded in participatory visual research (e.g., Glaw et al., 2017; Oliffe et al., 2008; Plunkett et al., 2013) with four key stages: researcher-led photo analysis, participant-led photo analysis, cross-comparison, and theorization. I will demonstrate this process using photographs from my study.

Mapping for Change: Photovoice Research Project

My research, as part of the project entitled Mapping for Change: Environmental Inequality and Resilience in Nogojiwanong/Peterborough, seeks to understand how communities experience environmental risk. As such, my research is animated by the following question: How do marginalized residents of Peterborough understand and experience environmental risk in their community? Photovoice was used as the primary research method to provide a forum for participants—residents of the Peterborough community—to document and reflect on the elements of the community that influence health and well-being, to promote critical dialogue and knowledge about community

issues, and to develop a grounded theory of socio-environmental factors that facilitate or hinder a healthy community environment. This study has contributed to the Peterborough community and the academic field by documenting the lived experiences of those facing environmental and social vulnerabilities through a photovoice project.

Participant Recruitment

Participant recruitment began following ethics approval from Trent University's Research Ethics Board (REB), granted on June 21, 2022, under the broader *Mapping for Change* project (REB #28026). Recruitment efforts were initiated through partnerships with the Kawartha World Issues Centre (KWIC), Community Race Relations Committee (CRRC), GreenUP, Research for Social Change Lab, and the New Canadians Centre, utilizing their email lists and websites to connect with individuals already engaged with these organizations. Additionally, we tapped into the networks of other community groups, including O'Kaadenigan Wiingashk (OKW), Trent Community Research Center and the United Way to broaden outreach. A recruitment poster (see Figure 1) was sent through these channels, providing details on eligibility and contact information for the research team. The poster was also distributed across various locations and in the downtown core, such as Trent University, the public library, grocery stores, and local community organizations.

Figure 1: Recruitment Poster

Recruiting marginalized participants often presents challenges in social science research, as traditional methods may not effectively reach these groups, and there are frequently barriers to their participation. Building trust is crucial, and our partnerships with KWIC, CRRC, and OKW offered a valuable connection to individuals already familiar with the impactful work of these organizations. To further support participation, all participants received an honorarium of $25 per hour for each meeting they attended.

This approach aligns with a key principle of community-based action research, which aims to facilitate the involvement of people who might otherwise be excluded.

Demographics of Research Participants

Following the recruitment process, a total of 19 individuals signed up and completed the research application, while 22 participants attended the orientation. To provide context about the participants, they were asked to complete a brief "Getting to Know You" survey (Table 2) that collected information on various demographic characteristics, including ethnicity, gender, age, income, and the first three digits of their postal code (see figures 2-4 below).

Peterborough/Nogojiwanong's demographic landscape, largely composed of white people, reveals stark socioeconomic disparities, particularly among the small number of racialized and Indigenous residents, where systemic barriers contribute to lower incomes, higher unemployment, and increased environmental vulnerability. Based on demographics from the 2021 Census data from Statistics Canada, there is a growing need for community-driven strategies that effectively address the distinct challenges faced by marginalized populations in Peterborough/Nogojiwanong.

According to Statistics Canada Peterborough/Nogojiwanong is primarily populated (93%) by individuals who are not in a visible minority group. Only 6.6% of the population identifies as visible minorities, a category defined by the *Employment Equity Act* as "persons, other than Aboriginal peoples, who are non-Caucasian in race or non- white in color" (Justice Laws, 2024), which includes groups such as South Asians, Chinese, Black, Filipino, Arab,

Latin American, and others. It is important to note that Indigenous people are not classified as a visible minority under this definition and are therefore included in the 93%. Peterborough/Nogojiwanong County's Indigenous population, representing approximately 5% of the total population, continues to face significant economic barriers. In terms of economic challenges, Peterborough/Nogojiwanong has a median income of $38,800 as of 2020. In Figure 3.3, the income data collected from our study shows that about 50% of participants reported earnings below the median income level, with six people reporting incomes within the $20,000 to $24,000 range or lower. Indigenous Peoples in Canada, on average, have lower median incomes and experience higher rates of poverty and unemployment compared to non-Indigenous Canadians (Indigenous Services Canada, 2023). These issues stem from systemic barriers and historical injustices, which continue to impact economic and social outcomes for Indigenous communities. This illustrates the prevalence of low income and income inequality, which affects 58% of individuals aged 18 to 64, and 25% of those over 65 (Statistics Canada, 2021). The 13.4% unemployment rate in Peterborough/Nogojiwanong reflects economic hardship, but our survey results (Table 2) indicated that our participants experienced even higher rates of unemployment or underemployment (Statistics Canada, 2021).

Additionally, the research revealed that the sample group had higher representations of women, low-income individuals, part-time workers, and both racialized and Indigenous people, further underscoring the challenges faced by our specific research participants (see Table 2).

The collection of participants' postal codes was a crucial as it helped establish a direct link between geographic location and the environmental injustices experienced by

the residents of Peterborough/Nogojiwanong. As highlighted in the documentary *There's Something in the Water* (2019), Dr. Waldron emphasizes how "in Canada, your postal code determines your health," illustrating the critical connection between geography, policy, and health outcomes, particularly for marginalized groups impacted by environmental injustices. Understanding the influence of one's location allows us to better examine how environmental hazards, access to resources, and other socio-economic factors disproportionately affect marginalized groups, highlighting the systemic inequalities tied to where people live.

Table 2: Getting to Know You Survey Data (Collected Nov 8, 2023 – participants chose not to fill in the survey)

Postal Code	Age Range	Gender	Equity Deserving Groups	Education	Employment	Income
K9J	35-44	Female	Women	College/University	Part Time	50-59,999K
K9H	55-64	Female	Person with disabilities, Women, Low income	College/University	Not employed	20-24,999K
K9H	65+	Female	Women	College/University	Retired	60-69,999K
K9J	35-44	Male	Low income	College/University	Part Time	>20K
K9J	45-54	Male	No	College/University	Laid off	40-44,999K
K9H	18-25	Female	Women, LGBTQ+	Highschool, enrolled in PS	Part Time	>20K
K9J	25-34	Female	Visible Minority	College/University	Part Time	45-49,999K
K9H	55-64	Female	Person with disabilities, Women, Low income	Elementary School, did not finish	Not emp, on disability	20-24,999K

K9J/KOL	35-44	Female	Visible Minority, Indigenous, Person with disabilities, Women, Low income	College/University	Part Time	>20K
K9H	35-44	Female	Women	College/University	Full Time	60-69,999K
K9J	25-34	Male	Indigenous	Highschool	Laid off	20-24,999K
K9J	25-34	Prefer not to All	Women, LGBTQ+	Elementary School	Part Time	40-44,999K
K9H	35-44	Female	Person with disabilities, Women, Low income	College/University	Full Time	50-59,999K
None	55-64	Female	Women, Low income	College/University	Laid off	Did not answer
K9H	65+	Female	Person with disabilities, Women, LGBTQ+	College/University	Not emp	20-24,999K
K9H	18-25	Female	person with disabilities, Women, Low income	College/University	Full Time	Did not answer
K9J	55-64	Female	Women, LGBTQ+	College/University	Laid off	>20K
K9H	18-25	Female	Women, Low income	College/University	Laid off	Did not answer
K9H	25-34	Female	Women, Low income	College/University	Full Time	Did not answer
K9H	35-44	Female	Women, Low income	College/University	Part Time	40-44,999K
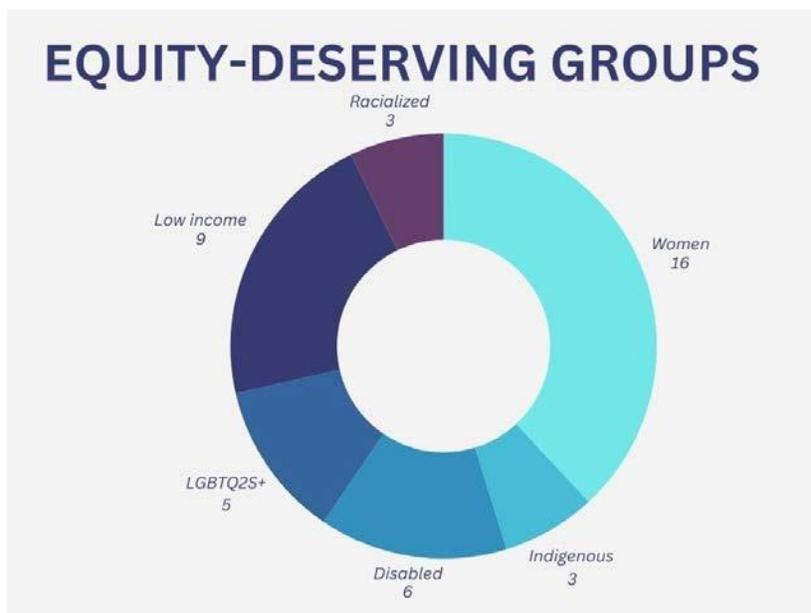
Figure 2: Participants from Equity Deserving Groups
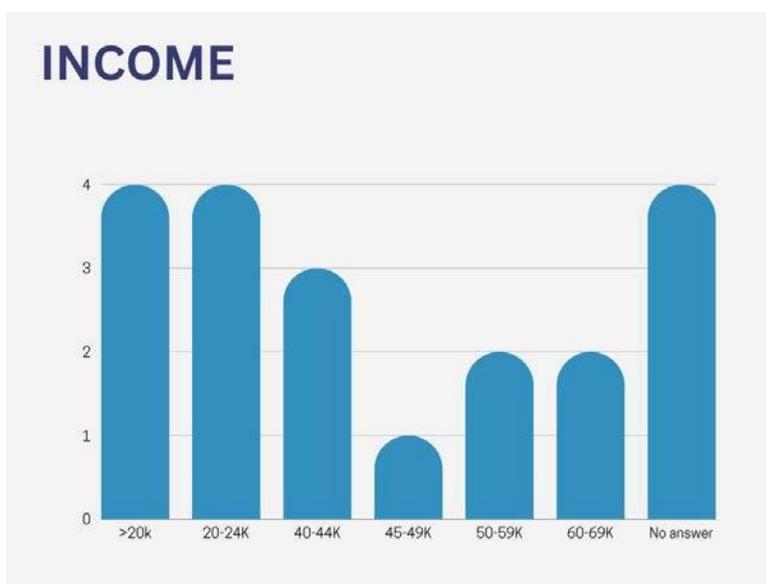
Figure 3: Participants by Income

Figure 4: Participants Employment Status

The Photovoice Process

Photovoice Training

The research team underwent photovoice training before beginning the workshops with

participants. These training sessions, divided into two "Train the Trainer" workshops, were

led by Laura Keresztesi, Program Coordinator at GreenUP, an environmental education

organization. The first session took place on October 24, 2023, followed by the second on

November 1, 2023, prior to engaging with participants. During the sessions, we learned how

to support participants beyond the project setting by conducting regular check-ins, fostering

safe spaces, and meeting participants where they are at. We also conducted a "trial run" of photovoice, where we each took five photos to capture environmental goods and harms in our neighbourhoods.

Orientation

On November 8. 2023, we held the orientation to the photovoice process for participants. During the orientation workshop, Lorenzo Whetung, *Kchi Matigamis*, an Elder and Knowledge Keeper from the Curve Lake First Nation, shared his experiences growing up in Curve Lake. He spoke of his childhood alongside his twelve siblings, where they were raised to respect the land. However, he also expressed how environmental injustices are now affecting his community, describing a profound sense of cultural loss as his heritage is being slowly stripped away.

Following this, Dr. Rutherford introduced the research project and explained the concept of environmental injustice. Participants then shared their thoughts on what environmental justice meant to them and highlighted examples of injustice they had witnessed in their community, including concerns over erosion and pollutants in Trent's waterways, limited access to wild spaces, asthma and dental issues related to water pollution, and the privatization of public spaces.

The orientation session also examined the power dynamics and ethical considerations of using a camera, emphasizing the importance of assessing personal safety when taking photographs. Participants were encouraged to remain within familiar areas and to never compromise their safety in the process. We also discussed the importance of "giving back to the community" by organizing an art exhibit featuring participants' photos, which

would be made publicly accessible to both participants and the wider Peterborough/Nogojiwanong community. Our group conversation centered on the ethical implications of using cameras in research, as outlined by Wang and Redwood-Jones (2001). Wang and Redwood-Jones highlight two key concerns: the first is the intrusion into someone's private space, as taking photos in public may still raise moral concerns when a story or meaning is attached to someone's image. The second is the potential to disclose embarrassing or harmful information about individuals, which could lead to community tension or backlash, especially if they are depicted unfavorably under the guise of social change. Participants were also given basic photography training, including concepts like the rule of thirds, angles, and shape perception. Participants had the choice to either use their personal cameras or one of the digital cameras provided. Of the 22 participants at the orientation, only one chose to use a disposable camera provided by the project. They were then asked to individually capture three to five key community strengths and critical concerns through their photovoice collection, documenting experiences and environmental injustices in familiar settings.

Photovoice Sessions

The photovoice project consisted of approximately twenty hours of group sessions, held quarterly at Sadlier House, a non-profit community center, and once at the Peterborough/Nogojiwanong Public Library. After this orientation and subsequent sessions, each \participant was invited to take photographs that reflected community- level concerns affecting their health and well-being, as well as strengths they hoped to build upon. The group met to discuss the photographs taken by participants on February

8, May 9, August 11, and October 11, 2024. During group sessions, these photos were shared in smaller groups facilitated by the research team and were analyzed through group discussions using the 'SHOWeD' technique, which serves as an acronym for guiding discussion questions. The questions included: (a) What do you see happening here? (b) What is actually happening here?; (c) How does this affect our lives?; (d) Why does this situation exist?; and (e) What can we do about it? (Wang, 2003). After the group discussions, participants collaborated in teams to sort their data and identify cross-cutting themes. During the May session, a participant suggested using GROK Empathy Game cards to support this process, and the cards were subsequently incorporated into both the May and August photovoice sessions. GROK cards are a structured tool designed to facilitate discussion and reflection through a set of exploratory prompts.

Originally produced in 2006, the GROK Empathy Game includes 70 Feeling cards and 70 Needs/Values cards, which promote emotional literacy and empathy in small group settings. Each card features words relevant to emotional expression and relationship dynamics. The purpose of incorporating GROK cards was to encourage participants to articulate the emotions evoked by their selected images, thereby fostering mindful communication and reflective listening. At the end of each photovoice analysis session, participants summarized the emerging themes, while facilitators recorded field notes to capture reflections on these insights. Any direct quotes from participants were shared through personal communication via email with prior consent. These notes were synthesized into a summary report used for thematic analysis to identify socio-environmental theoretical constructs emerging from the data. Audio or video recordings were not made during the sessions.

Limitations

As with any study this one has both strengths and limitations. This project gave our research team the chance to critically examine both the strengths and weaknesses of the photovoice methodology, as noted by other researchers. Our aim was to assess how effectively this method uncovers the often-hidden environmental injustices in the Peterborough/Nogojiwanong area. The central question, then, is whether photovoice enabled community members to accurately convey their views on their local environment. Addressing this requires a clear understanding of the limitations that accompanied the use of photovoice in this study.

Limitations Related to Participation

As noted, there was recruitment through partnerships with the Kawartha World Issues Centre (KWIC), Community Race Relations Committee (CRRC), GreenUP, the Research for Social Change Lab, and the New Canadians Centre, as well as postering in the downtown core to reach the targeted population for the project. The initial goal was to secure 50 participants, but following recruitment, only 22 individuals joined the study, with just 19 following it through to completion. Despite a shared commitment to achieving a larger and more diverse sample, the research team had undertaken a significant outreach to adequately represent the community's population diversity. Wang and Pies (2004) raised a key methodological concern regarding photovoice, noting that the issues identified are often reflective of only a small segment of the population, which leaves room to assume, if the process were repeated with a different group of participants, the outcomes and findings could vary significantly.

The sample size in this project is small and may not be representative of the views of all residents living in the targeted community. Participation across the sessions varied between 12 and 22 individuals, with 68% being female (see Table 2). The most significant challenge was having an average sample size, alongside a gender imbalance and fluctuating participant numbers, with inconsistent participation across the four quarterly sessions. While this is an inherent limitation of community-based research, the photovoice method is designed to enable individuals to express their own personal, everyday experiences. However, the lack of representativeness in the sample could impact the ability to use the project's results for informed community decision-making.

A significant challenge also arises from the nature of participants who choose to engage in a photovoice project and how effectively these self-selected individuals reflect their community. In the current project, participation demanded around three to four hours of each participant's time for every session. Those who are willing to dedicate this amount of personal time to a community initiative are often individuals who are already more engaged in their community. This bias may restrict the applicability of the findings to other contexts (Nowell et al., 2006).

Data Analysis

To protect participant confidentiality, a randomized numerical system was used throughout the research process in place of names or pseudonyms, as participants did not provide consent for their identities to be disclosed; this approach allowed for consistent referencing of individual contributions during analysis and discussion. In this research, I applied the grounded theory's three coding phases to data drawn from the photovoice

sessions. In alignment with community-based research principles, the initial stage of open coding in this project was carried out directly by the participants themselves, who collaboratively grouped the photographs into thematic categories during the photovoice sessions. As an example, I coded photos and stories for participants using affinities like 'community strength' or 'environmental concern.' In axial coding, I first grouped the initial codes into larger categories by getting rid of redundancies within the data elements and identifying relations. I was able to apply themes like 'health impacts' and 'environmental injustice' to larger categories of 'community health challenges.' In selective coding, based on the data synthesis, I changed the categories to develop a central theme, such as "environmental resilience in the face of adversity." This final step allowed me to write a coherent narrative that captures participants' collective experiences, learning from the photovoice process. It made sure that each phase maintained the analysis as spoken by the participants' voices and perspectives as well as their community concerns and strengths. I also spent many days and countless hours revisiting the data to perfect codes and to make sure that I was capturing the nuances of participants' narratives. This iterative approach was essential to completing an analysis that aligned with participants' experiences and yielded important themes related to the general themes of environmental justice and community resiliency. The coding process itself also reinforced validity by the collaborative nature of programming, where participant feedback was gathered frequently.

Participant List

I provided participants with the opportunity to self-identify themselves using 3-5 markers of their choice, allowing them to describe in their own words how these

identities relate to their experiences with environmental injustice. Those left with no markers did not self-identify and was abbreviated with DNI (Did Not Identify).

Table 3: Self-identification of Participants

Participants	Self-Identifiers
1. Participant 1	Non-Caucasian, Woman, International Student
2. Participant 2	PhD student, White, Male, Canadian citizen, able-bodied
3. Participant 3	DNI
4. Participant 4	She/Her, Middle Income
5. Participant 5	DNI
6. Participant 6	White, Male, Low Income
7. Participant 7	Female, Person with Disabilities
8. Participant 8	DNI
9. Participant 9	DNI
10. Participant 10	DNI
11. Participant 11	DNI
12. Participant 12	Privileged, Female, White
13. Participant 13	DNI
14. Participant 14	DNI
15. Participant 15	Female, Newcomer, Working Parent
16. Participant 16	Female, Peterboroughian, Inconsistent Income
17. Participant 17	Caucasian, Female and Low-income
18. Participant 18	Female, Elder
19. Participant 19	Low Income, Person with Disabilities
20. Participant 20	DNI
21. Participant 21	Female, Elder, White, Privileged
22. Participant 22	White, Low Income

The participatory approach of this research sought to center the voices of those most affected by environmental injustice, but three homeless co-researchers' limited participation is

noteworthy. They initially participated in the project during orientation session, but maintaining communication and involvement was difficult. A major obstacle was the lack of reliable phone or internet access, which is necessary to stay in touch with facilitators and get meeting time or location updates. This digital exclusion mirrors systemic barriers to research and service access for unhoused people. In retrospect, partnering with shelters or outreach workers, using printed flyers at key locations, or setting fixed in-person check-in times could have made the research design more inclusive. These reflections emphasize the need for participatory research to prioritize inclusion from the start and anticipate and address ongoing accessibility barriers for marginalized participants. This limitation also highlights that those in precarious living situations are most likely to be underrepresented in advocacy research.

Insights on the Photovoice Method

For future photovoice projects utilizing personal cameras, it is recommended to establish a maximum limit on the number of photographs participants can take for project purposes. In this project, participants were allowed complete freedom during the initial session, resulting in no formal restrictions on the number of images captured. Consequently, many participants took between 15 and 20 pictures, resulting in over 150 photographs submitted for the February session. After team discussions, we advised participants to focus on a smaller selection of photographs for discussion during the photovoice sessions. While this approach generated a large volume of photographs and data that were easy to collect, it also posed significant methodological challenges regarding how to analyze and present the information to accurately reflect participants' perceptions (Wang & Burris, 1997). Despite

the large number of photographs taken by participants, the strategy of having them select key images for the subsequent quarterly sessions proved effective. Each participant discussed about 3 to 5 photographs during the three- to-four-hour sessions. However, this time frame was not always sufficient for all participants to share their thoughts and captions on every photo, resulting in many images left without associated meanings by the final session in October 2024. This situation led to what Darbyshire and colleagues describe as photos lacking context, or photovoice without the voice (Darbyshire et al., 2005). It is inappropriate for researchers to assign meaning to these images themselves. Thus, future researchers employing photovoice should find ways to engage with participants regarding how these additional photographs can be meaningfully incorporated into data analysis and the presentation of community results.

According to Glass and Balfour (2003), the immediate home and neighborhood environments become increasingly vital for older adults, who may have less access to various locations in the urban setting due to financial or mobility challenges. This limitation can create barriers for older participants, as well as for those with disabilities or financial constraints, hindering their full engagement in photovoice projects. For example, Participant 19 expressed feelings of being overwhelmed by the task of submitting photos stating:

> *I'm not good with technology. I'm very busy. It seems strange that I could possibly be busy as a person with disabilities on ODSP, which is 40% below the poverty line. I spoke with Krystal from GreenUp tonight, and I told her I feel like I'm doing the project wrong. I don't go far or visit different places because I feel that poverty restricts me in that way. It's hard to take photos of the negative garbage. I guess I don't want the negative as there seems to be so much in the world and pieces in my neighborhood.*

Participant 18, a white senior woman, shared a similar experience, stating:

> *My income is OAS and CPP. I was getting the supplement, but they
> cut that off when I cashed in some savings last year. I own my modest
> house and don't have a mortgage, but repairs and maintenance are
> costly. I had to get rid of my 15-year-old car, so now I feel less
> independent, as I have to walk, ride my bicycle, or ask my daughters
> to drive me to the grocery store, appointments, etc. I can't afford to
> buy a car. This is also a safety concern when I have to walk alone
> after dark.*

Numerous studies have documented how environmental factors impact the mobility and

social participation of older adults and individuals with disabilities. Participant 7 shared, "*I

self-identify as a female with ADHD. I find it difficult to navigate certain areas of the

buildings at Trent.*" For example, Rosso et al. (2011) noted that elements of the built

environment—such as transportation systems (e.g., pedestrians and sidewalks) and urban

design (e.g., aesthetics and neighborhood decay)—significantly affect older adults'

wellbeing. Additionally, many elderly individuals struggle with technology, which can lead

to lower quality photographs shared in a photovoice project due to insufficient photography

skills.

Environmental justice struggles are deeply intertwined with the experiences of

international students, particularly women and racialized individuals, who often face unique

vulnerabilities in host countries. As temporary residents, international students frequently

lack knowledge of local environmental regulations and tenant rights, which can leave them

exposed to unsafe or unhealthy living conditions (Haq & Patrick, 2016). Participant 1, who

self-identifies as a non-Caucasian woman and international student, powerfully captures

these intersecting challenges:

> *Environmental injustice may disproportionately affect international
> students, especially women, who may be unaware of their rights and
> forced to live in lower-income areas with higher pollution and unsafe
> conditions.*

> *Limited financial resources often push them into neighborhoods with poor infrastructure, inadequate waste management, and restricted access to green spaces. Women in these areas face additional safety concerns, such as inadequate lighting and insecure housing, limiting their mobility and well- being. Language barriers and fear of visa repercussions prevent many from advocating for better conditions.*

This account illustrates how structural inequities including gendered and racialized safety concerns, economic precarity, and immigration status can exacerbate environmental injustices for international students. These experiences reflect broader patterns identified in environmental justice literature, which highlight how marginalized communities are more likely to live in degraded environments with fewer resources for resistance (Bullard, 2000; Pellow, 2002). Recognizing these intersections is critical for developing inclusive and equitable approaches to environmental justice that address the needs of all residents, regardless of citizenship status.

Environmental justice research highlights how low-income individuals often experience disproportionate exposure to environmental hazards and poor living conditions, as their limited resources restrict their ability to escape these detrimental environments (Pellow, 2002; Haq & Patrick, 2016). Low-income individuals are often concentrated in neighborhoods with higher pollution, inadequate infrastructure, and reduced access to green spaces, making them more vulnerable to environmental degradation. This is especially evident in urban areas where marginalized groups, including people experiencing homelessness and those with substance use issues, are often left to struggle in the absence of supportive services (Bullard, 2000). The quote from Participant 17, a Caucasian female with a low-income status, exemplifies how these intersecting factors shape her lived experience.

She states, *"I believe that my low-income status is the greatest determinant of my experience with environmental injustice. I live downtown on Bethune and Hunter streets... Walking to work every day, I am confronted with the effects of the drug and homelessness emergency that our city is facing."* This experience reflects how low-income residents are often exposed to the visible and tangible consequences of inadequate city planning, insufficient resources, and social neglect. Furthermore, Participant 17 expresses concern over the disconnection between affluent neighborhoods and these struggles, noting that *"people living in the suburbs or the more affluent neighborhoods don't know or care about the situation."* Such sentiments underline the socio-economic divide that exacerbates environmental injustice, with those in positions of power often disconnected from the harsh realities faced by lower-income residents (Gosine & Teelucksingh, 2016). The struggles outlined in this testimony resonate with broader systemic issues where low-income communities bear the brunt of environmental neglect, highlighting the need for equitable solutions that prioritize the voices of those most affected.

A key methodological recommendation that emerged from conducting this photovoice project is that it is highly advised that future photovoice projects set a limit on the number of photographs each participant can take. If setting a cap is not preferred, sufficient time should be allocated during the photovoice sessions to discuss all of the participant's photographs. This approach would allow researchers to gather comprehensive insights or the "whole story" behind the participant's photo-taking experience, rather than asking them to narrow their focus to just a few images deemed "most meaningful or important." This is particularly

crucial, given that the photovoice method typically involves smaller participant groups, and in this case, the group size was relatively manageable.

At the completion of the project, there was an overwhelming sense of receptiveness and appreciation expressed by participants. Many shared positive reflections on their involvement, emphasizing the personal and collective value of the experience. For example, Participant 22 noted:

> *This was such a great project. I'm so grateful I had the opportunity to participate. I learned so much about PTBO as a physical space, but also the community of people and their perspectives as they moved through the space and connected with each other during our time together. I would love to see your approach become established as an ongoing way of studying environments. Your thesis is going to be wonderful and creative, and a real contribution to the field of environmental justice.*

Chapter 4: Results and Discussion

Introduction

In this chapter, I analyze the themes that emerged from the four photovoice sessions described in Chapter 3, highlighting the ways in which participants articulated their experiences of environmental injustice. By structuring the discussion around each session, I examine how participants engaged with the research process, the issues they identified, and the meanings they ascribed to their photographs. This approach allows for a detailed exploration of the specific concerns raised in each session while also providing space to reflect on overarching patterns that connect these discussions.

Following this session-by-session analysis, I present broader reflections on the recurring themes that resonated across all sessions, drawing connections to the environmental justice literature reviewed in Chapter 2. These insights not only reinforce existing research on environmental injustice but also offer new perspectives grounded in the lived experiences of participants. By integrating their voices with scholarly discussions on distributive, procedural, and restorative justice, this chapter underscores the importance of community-driven research in shaping a more nuanced understanding of environmental injustice in Peterborough/Nogojiwanong.

The chapter is organized into four main sections. The first section, titled *Gender and Class and Environmental Injustice*, offers an in-depth examination of how intersecting identities— specifically gender, class, race, disability, and sexuality— influence participants' experiences of environmental risk and exclusion. While earlier

chapters emphasized the historical and structural impacts of colonization and Indigeneity in environmental justice, this section begins with gender and class for two reasons: first, the majority of participants (68%) identified as women, many of whom were also low- income and/or living with disabilities; and second, their experiences formed a dominant thread across all four sessions. Although no active participants explicitly identified as Indigenous, the effects of settler colonialism still surface throughout the data and are reflected structurally in later sections—particularly in discussions of land, exclusion, and systemic governance failures.

The second section summarizes the key issues raised by participants during each Photovoice session, including concerns about housing, neglected infrastructure, loss of community spaces, and environmental health risks. This provides a contextual foundation for deeper thematic exploration.

The next section presents a more focused visual and narrative analysis based on the participants' photograph interpretations and GROK card reflections. It highlights the emotional dimensions of environmental harm and the participants' responses to the images they created and discussed.

In the next section, I synthesize the recurring themes that emerged across all sessions. These include: Privatization of Space, Exclusion, Sanctuary, The Housing and Homelessness Crisis, Mental Health and Wellbeing in Neglected Environments, Environmental Degradation, Lack of Accountability in Governance, and Personal Autonomy and Well-being. These themes are explored through participants' words, linked to academic literature, and interpreted through the lenses of environmental justice theory.

The final section briefly reflects on how participants envisioned using this work to support advocacy and systems change, drawing attention to the role of community knowledge in knowledge mobilization.

Gender and Class and Environmental Injustice

Through the use of the 'getting to know you' survey results, I found that participants in the photovoice research tended to be a part of equity deserving groups with regard to race, gender, class and sexuality. Environmental injustice affects some groups more than others, making it important to consider whose experiences are being centered in research. Intersectionality shines a light on the fact that, for instance, climate change can also go hand in hand with other forms of inequity and can exacerbate issues for certain communities due to social injustices they battle with simultaneously.

Unlike the majority of EJ research that has focused on the intersection of race and environmental harm, my participants were largely low-income, disabled women. Of the 22 co-researcher participants, 15 (68%) identified as women, 14 identified as low- income, and 10 reported living with a disability. This demographic profile reflects a significant, yet underrepresented, population in EJ scholarship and highlights the importance of exploring how gender, class, and disability intersect to shape environmental experiences. The intersection of these identities represents an understudied area in the environmental justice scholarship, with notable exceptions (e.g. Gaard, 2022; Stein, 2024). I consider class, gender, and (dis)ability, as well as race and other social categories and constructs, alongside the lived and living experiences of the persons who are facing inequitable environmental

burdens. These burdens include distributional and procedural injustices, both of which hinder a healthy community environment (restorative justice).

A gendered perspective is required in relation to environmental justice because women often live and work in circumstances that are not environmentally safe, and this has implications for their wellbeing (Buckingham & Kulcur, 2009). While men can also experience disproportionate environmental burdens often related to occupational exposures, such as those seen among the predominantly male workforce at General Electric, where 70–75% of employees were men (DeMatteo & DeMatteo, 2019), this study focuses primarily on women, who made up the majority of participants. Despite their centrality in many environmental struggles, there remains a relative lack of environmental justice research that focuses specifically on gender. In this section, I draw together relevant existing scholarship to explore women's environmental disadvantage, including limited access to environmental resources, unequal exposure to environmental harm, increased vulnerability, restricted participation in environmental decision- making, and the health consequences of these disparities.

There is some evidence from the environmental justice, geography, and development fields that there are gender disparities in terms of environmental burdens and access to environmental goods. Female-headed households are more likely to be found in polluted and environmentally degraded areas (Buckingham et al., 2005). Furthermore, women are more likely to be affected by climate change, which acts as a risk multiplier, a factor that intensifies existing vulnerabilities by compounding the effects of poverty, social exclusion, and unequal access to resource (UNDP,2016). When environmental disasters such as

earthquakes and hurricanes occur, evidence suggests that women are at greater risk than men with higher mortality rates (Dasgupta et al., 2010). There is also evidence that male violence against women increases in the wake of "natural" disasters as a result of women's oppression and their lack of inclusion in disaster responses (Rees et al, 2005). In general, women are less likely to have the resources to adapt to or avoid environmental problems. Hence, we see that women experience particular environmental burdens, resource inequities and responsibility for environmental protection. It should also be noted, though there is not the space to explore this here, the degree to which women experience distributional environmental injustice, and the form that it takes may be compounded or shaped by intersectional factors, i.e., related to experiences as an ethnic minority, disability, youth, age, and LGBTQIA+.

Race, class, disability, LGBTQIA+ identity, age and other intersectional considerations also shape environmental justice outcomes for women. These factors often compound the environmental injustices that some women experience since, in many instances, they go hand in hand and compound poverty and unequal status. It is important to note that using an environmental justice framework that focuses solely on any single issue will not be sufficient to capture the form and extent of environmental injustice that most people experience. For instance, LGBTQIA+ people experience environmental related impacts differ as they are more likely to experience homelessness than their cisgender, heterosexual counterparts (Choi et al., 2015).

Examining the Intersectional Identities of Participants

Understanding how the intersecting factors of gender, disability, income, and race shape individuals' environmental experiences is crucial for a comprehensive analysis of

environmental injustice, as these identities collectively influence both vulnerability to environmental risk and access to resources for resilience and adaptation. The intersectional nature of the participants' identities is relevant in shaping their understandings and experiences of environmental risk and harm. Intersectionality, attributed to Black feminist thought, is described as the interdependent and overlapping nature of social categorizations such as race, class, gender, and disability, which can give rise to overlapping and interdependent systems of disadvantage (Crenshaw, 1989). In this section, I shall explain how the intersectional identities of the participants in this project translated their experiences and understandings regarding environmental issues, with particular reference to gender, race, income, and disability. The following subsections explore these dynamics in greater depth, focusing on four key areas: gender and safety concerns, race and the environment, income and access to resources, and disability and accessibility. Together, these insights offer a nuanced understanding of how structural inequalities compound to shape environmental injustice at the community level. This will facilitate the understanding of how these identities interact with environmental risk and how participants experience and respond to environmental issues in Peterborough/ Nogojiwanong.

Gender and Safety Concerns

The women in this study expressed a deep sense of insecurity, particularly in public downtown spaces, libraries and parks, where hostile architecture and surveillance are prevalent. This sentiment was also acknowledged by Participant 6, a self-identified white, low-income male, who recognized the compounding struggles faced by women,

especially those with disabilities, when navigating public areas lacking proper infrastructure and accessibility. This reflects a broader issue: women are disproportionately affected by environmental neglect which is the chronic underfunding, poor maintenance, and exclusionary design of public infrastructure —which leaves the need for safe, accessible spaces unmet (Roy et al., 2024). Participant 10, a self-identified low-income white woman, emphasized that the privatization of green spaces and the lack of investment in public infrastructure exacerbates this issue, particularly for women who are caregivers or from lower economic backgrounds. These women often face mobility challenges and have fewer resources to access limited, safe spaces. Participant 10 also lamented that the degradation of public areas has led to a sense of exclusion from community life, as such spaces are increasingly dominated by private interests. This highlights how gender, in conjunction with class and disability, shapes one's perception of environmental risks and exclusion.

Race and the Environment

Racialized communities in Peterborough/Nogojiwanong face compounded environmental injustices, as discriminatory policies and institutional neglect limit their access to safe public spaces and resources, exacerbating their vulnerability to environmental harm. Participant 22, a white female, highlighted the lack of access to public resources for racialized communities in Peterborough/Nogojiwanong, pointing to discriminatory policies that exclude these communities from safe and accessible public spaces and services (Beard et al., 2024). Participants who identified as racialized and newcomers (Participants 1 and 15),

expressed how race significantly influences their experiences of environmental degradation, especially concerning the safety of public spaces for themselves and their children. Concerns over the safety of public parks, which are often contaminated with needles and syringes, reflect a broader issue of environmental neglect. Participant 17, a white, low-income female, observed how certain public spaces are not only neglected but are also actively policed in ways that disadvantage racialized communities.

This neglect and policing reflect a larger trend of procedural environmental injustice, where marginalized racial communities are systematically excluded from meaningful participation in environmental decision-making processes (Ulibarri et al., 2022).

Income and Access to Resources

Low-income participants expressed frustration with the limited availability of essential resources, such as public restrooms, garbage collection services, and safe pedestrian spaces, particularly in the downtown area. For example, Participant 6 highlighted how inadequate waste management in lower-income neighborhoods created a vicious cycle of environmental degradation, further deteriorating the living conditions for residents. These communities are disproportionately burdened by the uneven distribution of both environmental resources and environmental hazards—a pattern that continues to shape experiences of environmental injustice. As Participant 10 noted, gentrification has pushed low-income residents into already neglected areas, intensifying their exposure to pollution and environmental degradation while deepening their social and spatial marginalization. This concern with

environmental decline is echoed by Participant 21, a 77-year-old white woman, who

reflected on the cumulative impact of environmental harm over time:

> *In some ways I'm privileged, but I grew up in the Adirondack Forest*
> *Preserve in NY state and I've seen lots of environmental degradation*
> *there and elsewhere since moving from there over fifty years ago. I*
> *remember how the lakes were so very clear (no life) from acid rain.*
> *But also how the air was laden with particulate pollution. It's*
> *important to me that the next generations have clean air and*
> *unpolluted water.*

Disability and Accessibility

Disability plays a pivotal role in shaping participants' experiences of environmental

harm, as inaccessible public spaces and infrastructure create significant barriers to full

participation in daily life. Participant 8, a low-income woman living with a disability,

explained that public spaces are often inaccessible to people with disabilities, as they are not

designed with their needs in mind. Individuals with mobility impairments struggle to navigate

these spaces, particularly when sidewalks are uneven, seating is unavailable, or the areas are

poorly designed. For example, poorly maintained sidewalks or steep inclines that limit

wheelchair access. This ableism in public space design represents a critical aspect of

environmental exclusion, where individuals with disabilities face physical barriers that limit

their access to environmental goods (Schlosberg, 2007).

Participant 6 further emphasized the lack of accessible infrastructure, such as public

restrooms, seating, and parking, as significant barriers for disabled individuals. This exclusion

contributes to deeper social and environmental inequalities, as disabled people are not only

less likely to be socially engaged but also face greater challenges in accessing vital

environmental resources. The failure to address these accessibility issues

highlights the intersection of environmental and social justice, both of which often overlook the needs of individuals with disabilities, exacerbating their marginalization.

The insights shared by participants in this study reveal how gender, disability, race, and class intersect to shape environmental experiences in Peterborough/ Nogojiwanong. Rather than acting in isolation, these identities compound one another, amplifying the environmental burdens individuals face and limiting access to essential public resources and spaces. For women, particularly those who are low-income or living with disabilities, public environments often feel unsafe, neglected, or outright inaccessible. Racialized participants spoke to systemic exclusion and over-policing in public areas, further evidencing procedural injustice. At the same time, those navigating poverty described both environmental degradation and gentrification as ongoing challenges to stability and wellbeing. Across all these accounts, participants clearly expressed that access to clean, safe, and welcoming public spaces is not just a matter of urban design, but of equity, dignity, and justice.

Below, I describe the key themes that emerged across the Photovoice sessions. These themes are presented in a way that reflects the intersectional nature of participants' experiences emphasizing how overlapping social identities shape not only their perceptions of environmental harm, but also their visions for a more just, inclusive, and sustainable urban environment, grounded in the principles of distributional, procedural, and restorative justice.

Key themes in the Photovoice Sessions

In each photovoice session, participants shared personal reflections on their relationships with the urban environment, revealing both deep attachments to community spaces and critical insights into environmental injustices. The photovoice method allowed for a layered exploration of place, where visual storytelling and dialogue helped surface recurring concerns, overlooked environmental risks and harms, and visions for community resilience. These themes were first identified through group-based activities, such as GROK card reflections and pile-sorting, and later refined through a researcher-led thematic analysis of the full dataset. This collaborative and iterative approach ensured that both participant perspectives and broader theoretical insights informed the final analysis.

Initial findings indicate that participants generally held a positive outlook on their community environment. However, as the sessions progressed, various community strengths or assets emerged that could be further developed, alongside significant concerns that needed attention. The strengths, including natural spaces, artistic expression, and opportunities for social connection—that could be built upon to support environmental and social wellbeing. Notably, many strengths were juxtaposed with corresponding concerns; for instance, while the community's natural beauty was recognized as a assets or spaces of connection, issues such as litter and dumping in public parks were highlighted as areas of concern. These overlapping insights led to the identification of several thematic categories: (a) Use of Public Space, (b) Industrial/Ongoing Colonialism, (c) Environmental Neglect, and (d) Spaces for Community

Connection—which were collaboratively developed through group discussions during the Photovoice sessions. Co-researcher participants played an active role in naming and shaping these themes by sharing interpretations of their photographs, selecting GROK cards, and engaging in collective dialogue around shared experiences and concerns.

The qualitative data analysis followed an iterative, multi-stage, and collaborative process involving both participants and researchers. After each photovoice analysis session, participants were asked to identify and summarize emerging themes from their discussions. They were then organized into small teams to conduct a pile-sort activity where they grouped key ideas, quotes, and images based on perceived connections. This activity resulted in the creation of initial thematic clusters, which reflected shared priorities and recurring concerns across the dataset.

These clusters served as the foundation for a broader set of overarching themes that were refined through subsequent discussions and analysis. In parallel, facilitators and I documented field notes and shared personal reflections to deepen our understanding of these emerging patterns and ensure that participants' voices remained central in the interpretive process. To analyze the photographs, I started by examining them according to themes previously identified and categorized by the participants, carefully reviewing each category in detail. I then refined these categories through an iterative process of re- categorization and re-examination, continuing until I was able to identify emerging overlaps and themes that didn't overlap in the data. For example, several photographs in the study depicted hostile infrastructure and the lack of safety in public spaces (Figure 5 and 6). One photograph, shown in Figure 6 below, showed a lack of shaded areas, seemingly designed to deter people

experiencing homelessness from gathering by offering no protection from the sun. Another photograph, shown in Figure 5, featured a bench with armrests in the middle, a design intended to prevent loitering or sleeping. These images, in my analysis, suggested a clear intersection in the data, all aligning with the theme of hostile architecture and control over who can use what space. Throughout the analysis, I made detailed analytical notes to capture my interpretations of the photographs.

In the final stage, I conducted a thematic analysis across all photos taken during the four sessions, examining them through a socio-environmental lens to identify key theoretical constructs that related to the data. This multi-step approach helped ensure a thorough, participant-driven analysis while connecting the findings to broader theoretical frameworks. Table 4 summarizes the themes identified by participants, along with their interpretations of the photographs, categorizing them as either community assets or concerns for each theme.

Photograph Analysis Based on the Participants' Interpretations

The tables below summarize the key themes generated by participants in each sharing circle, capturing participant examples and providing interpretations within the context of environmental justice. Over 300 photographs were captured by participants throughout the study. While it was not feasible to include all of them in this thesis, I selected one photograph from each participant who attended each session that reflected the themes discussed in each session.

These photographs were chosen based on how participants described their connection to the images and themes and how the images reflected their identities and experiences with environmental injustice. All of them represent participant observations about social and environmental concerns in their community.

A participant key was developed to organize each participant's themes across sessions and to track attendance, helping to identify how individual concerns evolved or remained consistent over time. On average, each session included approximately ten participants, with five of nineteen participants consistently attending every session.

Table 4: Participant Key of Themes Across Sessions

Participant Name	Session Date	Themes Expressed	Concerns Raised
Participant 17	Feb 9	Vandalism, Garbage, Homelessness	Who's responsible for neglected spaces?
Participant 14	Feb 9	Colonialism, Social Justice, Community	Community exclusion, accountability
Participant 2	Feb 9	Environmental Impacts of Commodification	Disconnection between people and their environment
Participant 10	Feb 9	Sanctuary, Connection to Land	Destruction of nature through colonization
Participant 8	Feb 9	Isolation, Waste, Lack of Mobility	Lack of accessible, public spaces
Participant 15	Feb 9	Access to Space, Hostile Infrastructure	Environmental harm caused by infrastructure

Participant 18	May 10	Disconnection from Nature, Lack of Space	Lack of greenspace in the city
Participant 7	May 10	Gentrification, Space for Belonging	Isolation, loss of community
Participant 6	May 10	Environmental Responsibility, Public Space	Waste management, city responsibility
Participant 22	May 10	Community Connection, Urban Issues	Sense of belonging, security
Participant 19	May 10	Gentrification, Unsafe Spaces	Gentrification, loss of community
Participant 4	Aug 9	Healing from Grief	Healing through water, community spaces
Participant 16	Aug 9	Community Spaces, Belonging	Lack of care for public spaces
Participant 21	Aug 9	Environmental Connection, Community Building	Public spaces, mobility concerns
Participant 1	Aug 9	Neglected Spaces, Environmental Degradation	Environmental neglect
Participant 12	Aug 9	Environmental Justice, Waste	Environmental neglect
Participant 6	Oct 11	Waste Management, Accountability	Environmental neglect
Participant 4	Oct 11	Community Building, Activism	Public spaces, infrastructure

Participant 18	Oct 11	Inclusion, Dignity	Public spaces, waste control
Participant 7	Oct 11	Public Safety, Public Engagement	Accountability, communal action
Participant 17	Oct 11	Exclusion, Mobility	Gentrification, community impact
Participant 19	Oct 11	Environmental Justice	Hostile architecture, exclusion
Participant 15	Oct 11	Waste Management, Public Resources	Safe spaces for all, public responsibility
Participant 8	Oct 11	Environmental Stewardship	Gentrification, community impact

February 9^{th,} 2024, Photovoice Session

The February 9th photovoice session explored concerns such as lack of maintenance in public spaces, lack of access to public goods, and deterioration of the environment. Participants discussed concerns about insecure public spaces, infrastructure, and their impact on marginalized community members. Community mobilization and connection with nature were raised environmental assets as important for developing resilience and well-being. The chart above organizes key themes, participant examples, and interpretations from the February 9th photovoice session. It provides a structured overview of the concerns and assets identified by community members, linking their photographs to broader discussions about environmental justice, public space neglect, and community resilience. Figure 5 presents a collage featuring one photo contributed by each participant who attended the session. The collage visually reinforces the session's key themes, with each photo serving as evidence of the participants' lived experiences. By attributing the photos, we honor their contributions and contextualize the imagery within the broader discussion of environmental justice, community resilience, and systemic neglect.

Table 5: Key Themes in February 9th, 2024 photovoice session

Participant	Photo Description	Linked Theme	Interpretation
Participant 17	Abandoned lot by Bethune and Aylmer, filled with trash and used for squatting.	**Neglect of Public Spaces**	Highlights environmental degradation due to lack of maintenance and public neglect.
Participant 8	Garbage in a ditch with a suitcase.	**Neglect of Public Spaces**	Symbolizes systemic neglect and improper waste disposal in marginalized areas.
Participant 21	Discarded needles/garbage in public spaces.	**Neglect of Public Spaces**	Reflects health hazards and unsafe conditions in neglected areas.
Participant 10	Abandoned spaces described as "sickness on the body of the city."	**Exclusion & Access to Resources**	Metaphor for systemic neglect and inequitable resource distribution.
Participant 14	Trash near a street art mural.	**Environmental Degradation**	Contrasts community creativity with environmental harm from waste.
Participant 22	Garbage in Bonnerworth Park and other public areas.	**Environmental Degradation**	Demonstrates widespread illegal dumping and lack of upkeep.
Participant 3	Tim Horton's coffee cups strewn in bushes.	**Environmental Degradation**	Critiques consumer waste and its impact on natural spaces.
Participant 12	Armour Hill as a site for garbage dumping.	**Environmental Degradation**	Shows how natural areas become targets for neglect.
Participant 8	Proposal for community gardens.	**Community Engagement & Empowerment**	Advocates for grassroots solutions to reclaim public spaces.
Participant 14	Street art as a form of community connection.	**Community Engagement & Empowerment**	Emphasizes art's role in fostering collective identity.
Participant 1	Lakefield Trail as a place to connect with nature.	**Sanctuary and Connection to Nature**	Positions nature as a refuge for healing and spirituality.

Participant 17	Nature described as a sanctuary.	**Sanctuary and Connection to Nature**	Reinforces the restorative power of green spaces.
Participant 10	Spiritual connection to land/water.	**Sanctuary and Connection to Nature**	Links environmental justice to cultural and emotional well-being.
Participant 4	Bridges as spaces of connection.	**Sanctuary and Connection to Nature**	Highlights infrastructure that fosters community interaction.
Participant 16	Community-based initiatives (e.g., solidarity projects).	**Community Engagement & Empowerment**	Showcases local efforts to combat exclusion.
Participant 14	Metal bars on benches preventing lying down.	**Hostile Architecture & Surveillance**	Critiques designs that exclude unhoused populations.
Participant 19	Uncomfortable library chairs discouraging long stays.	**Hostile Architecture & Surveillance**	Exposes how public spaces are weaponized against marginalized groups.
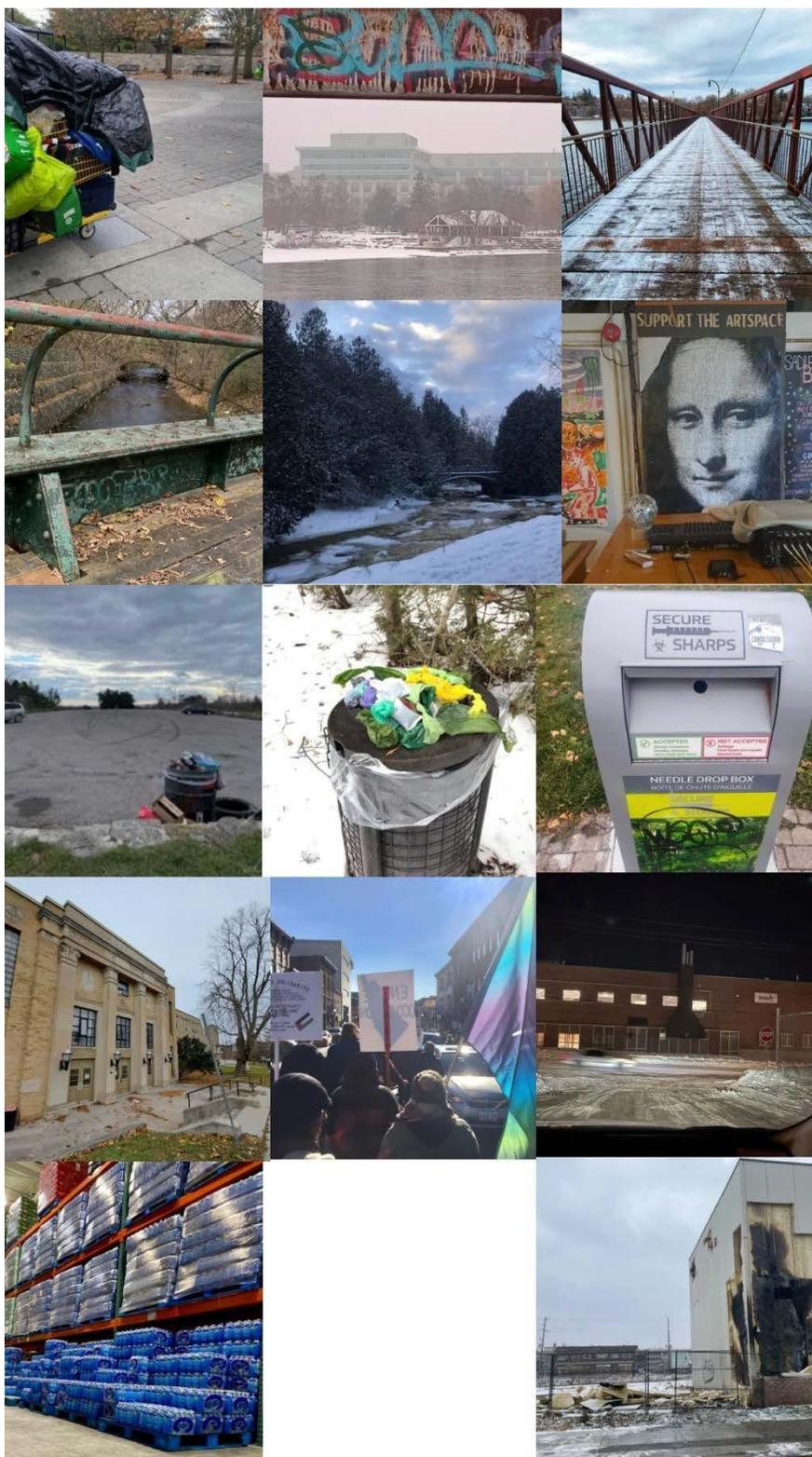
Figure 5: February Photovoice Session Participants' Photos

May 10th, 2024, Photovoice Session

In the May 10th session, participants explored concerns such as housing, environmental inequality in terms of disproportionate impact on marginalized people, lack of governance accountability, and the mental impact of poorly serviced public spaces. The use of GROK cards were used in the May and August sessions, where participants were divided into three smaller groups, each consisting of 6–8 individuals. A facilitator guided the discussion, prompting participants to present one or two pictures and use the GROK cards to articulate their emotions and needs related to their chosen images. The following exploratory questions structured the discussion:

Exploratory questions (2-4 smaller groups)

1. Tell us about a place you marked where you feel safe. (The participants were to identify/mark and share the exact location where their photograph was taken. These markings served as a starting point for reflection and storytelling).
2. Tell us about a place you marked where you don't feel safe.
3. Why did you decide to mark the place(s) you did?
4. How does the image relate to the place(s)?
    a. Pick three cards that describe your image
5. Has this experience changed anything about how you think about your neighbourhood/community?

Participants explored their experiences with systemic inequality and colonialism, with a

strong message for increased participatory decision-making and equitable urban

development. Figure 6 b presents a collage featuring one photo contributed by each

participant who attended the session.

Table 6: Key Themes in May 10th, 2024, Photovoice Session

Participant photo description	Themes	Participant Examples	Participants' Interpretations
Participant 18: London St Bridge / Little Lake (peaceful natural space) Participant 19: Thriving community garden (food security focus)	**Public Space as Sacred**	- Participant 18: Describes peaceful spaces like London St Bridge and Little Lake. -Participant 19: Shared the example of a community garden that was well used and brought food security.	Public spaces, such as parks and gardens, were sacred spaces for participants. Public spaces operated as spaces for community and wellness shared spaces, and through them, their role in environmental justice through healing and community became manifest.
Participant 14: Pollution near railroad tracks / unhoused encampment Participant 15: Lack of greenspace in dense urban area	**Housing and Homelessness Crisis**	- Participant 14: Describes the struggles of the unhoused, including lack of space for personal belongings. - Participant 15: Discusses the housing crisis and lack of greenspace.	The theme under discussion addresses housing instability, and speakers emphasized inequality in access to housing and public spaces. Marginalized groups disproportionately suffer under housing crises, and in return, it creates environmental injustice.

Participant 14: Trash accumulation near unhoused spaces Participant 18: Dirty public toilets /	**Environmental Inequality and Marginalization**	- Participant 14: Notes pollution near the railroad tracks, highlighting the hazardous environments surrounding the unhoused.	Environmental inequality can be understood in terms of poor and marginalized communities having been exposed to toxic waste, pollution, and unclean environments. Environmental inequality in terms of a burden

		- Participant 18: Mentions the lack of clean public toilets and garbage accumulation.	of harm is a significant issue in environmental justice.
Participant 6: Abandoned lot with "No Trespassing" sign Participant 19: Piles of uncollected garbage	**Lack of Accountability in Governance**	- Participant 6: Describes lack of consultation in decision-making regarding public spaces. - Participant 19: Mentions issues with garbage collection and municipal slow response.	The theme stressed a lack of accountability in governance, specifically in managing public property and in terms of managing environmental degradation. Participants condemned governments for not acting in reaction to critical community concerns, widening environmental inequality.
Participant 4: London St footbridge (calming greenery) Participant 17: Broken sidewalks / unsafe pathways	**Mental Health & Wellbeing**	- Participant 4: Discusses mental health benefits of public spaces like the London St footbridge. - Participant 17: Expresses frustration with unsafe public spaces, especially for those with mobility challenges.	The psychological welfare of residing in run-down environments was emphasized in relation to its role in mental misery and tension, specifically for sensitive populations, including older persons and homelessness.
Participant 17: Historical plaque in gentrified neighborhood Participant 22: Luxury condos next to dilapidated housing	**Systemic Inequity & Colonialism**	- Participant 17: Reflects on the historical exclusion in the context of public space ownership. - Participant 22: Mentions the gentrification and its impact on affordable housing.	The systemic inequality and ongoing legacy of colonialism were recurring strands. Participants discussed the impact of gentrification and a lack of consultation with communities in shaping marginalized communities, a reflection of larger colonial frameworks in environmental decision-making processes.

Figure 6 is a collage of photographs contributed by participants during the May 10th, 2024, Photovoice session. Each image reflects the session's themes, which emerged from discussions about housing insecurity, environmental inequality, governance accountability, and the mental health impacts of neglected public spaces.
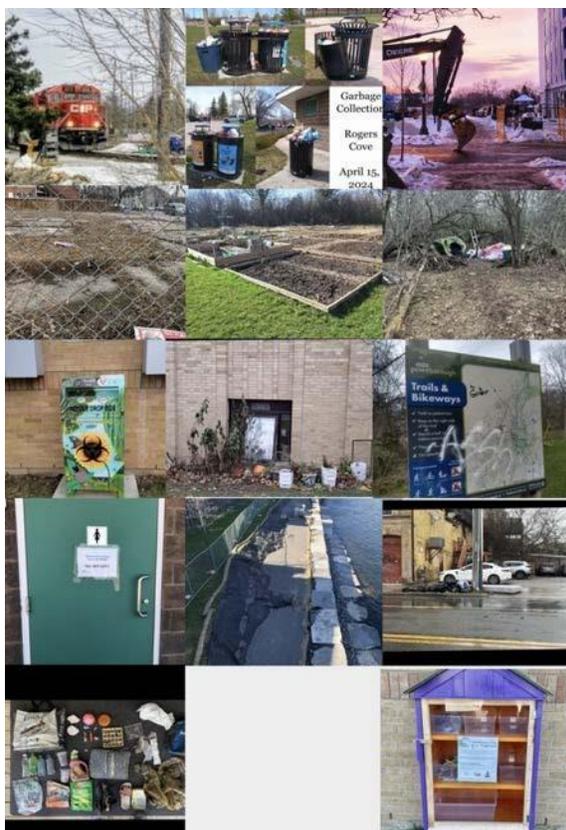
Figure 6: May Photovoice Session Participants' Photos

August 9th, 2024, Photovoice Session

In the August 9 session, participants delved into topics such as hostile infrastructure, environmental degradation, and unequal access to public spaces, with a focus on the effects of economic disparities and exclusionary design. Participants shared personal experiences of

empowerment and belonging through community activities like gardening, while also

highlighting the negative impact of poorly maintained public spaces on marginalized groups.

The session emphasized the importance of creating inclusive spaces that promote personal

autonomy, wellbeing, and a sense of community, all while advocating for environmental

justice through the equitable distribution of public resources. Figure 7 presents a collage

featuring one photo contributed by each participant who attended the session.

Table 7: Key Themes in August 9, 2024, Photovoice Session

Participant and photo descriptions	Themes	Participant Examples	Participants' Interpretations
Participant 22: Green gates on social services building. Participant 19: Uncomfortable library seating.	**Hostile Infrastructur e**	- Participant 22: Discussed the green gates on the social services building designed to deter the unhoused from accessing shade. - Participant 19: Also referenced uncomfortable seating at the library meant to exclude certain groups.	Strategic placement of gates and uncomfortable seating in public urban areas functions as a method to regulate access between different groups of people. Eg. housed and unhoused. Environmental design enforcement policies in public spaces target marginalized individuals, including the homeless population, which reinforces social discrimination.
Participant 8: Community garden (Peterborough/ N ogojiwanong Gleaners). Participant 15: Nichols Oval Park (playground with child).	**Community Belonging**	- Participant 8: shared their experience of personal empowerment through gardening, expressing a sense of community through activities like participation in the Peterborough/Nogojiwano ng Gleans.	Public spaces, when utilized for community-driven initiatives such as gardening and communal activities, foster a sense of belonging and social cohesion. These spaces become vital in promoting mental well- being and providing a sense

		-Participant 15: Took a picture of Nichols Oval Park, a place where they take their child and feel a sense of belonging.	of agency, especially for marginalized individuals.
Participant 22: Overflowing garbage in public space. **Participant 10: Derelict trails with broken signage.** **Participant 7: Burnt-out house (London & Water St).**	**Environme nt al Degradatio n**	- Participant 22: Reflected on the constant accumulation of garbage in public spaces, despite attempts to clean it. - Participant 10: Highlighted the derelict state of trails and lack of maintenance. -Participant 7: Offered a picture of a burnt-out house at London and Water that hasn't been repaired.	Unkept public facilities and bad stewardship show urban planning institutions have not achieved their goals for environmental resolution. The poor state of infrastructure creates major harm to marginalized communities, so it worsens both social dilemmas and environmental issues.
Participant 8: Solo gardening in a communal plot.	**Personal Autonomy & Wellbeing**	- Participant 8: Discussed the comfort and therapeutic value they found in gardening alone, alongside the calming experience of being part of community groups.	The freedom to engage in public spaces both individually and collectively plays a vital role in fostering community. Gardening practice enables personal wellness benefits in addition to community recovery because it reveals how public spaces should support mental health services.

Participant 22: Pickleball court in affluent neighborhood.	Economic Disparities in Space Access	- Participant 22: Expressed frustration about the economic barriers that prevent certain groups from accessing public spaces.	Economic disparities among residents create barriers to accessing public spaces, often resulting in affluent groups receiving preferential access over marginalized communities. For example, the creation of a pickleball court was seen as catering primarily to community members who can afford to

			play the sport, highlighting how recreational planning often reflects the interests of more affluent demographics. The inequities originating from systemic discrimination make environmental inequality and social isolation steadily worse.
Participant 1: Crime-ridden alley with drug paraphernalia.	**Lack of Safety**	-Participant 1: Offered several pictures that showed areas where she felt unsafe, do in increased crime and/or drug use.	Hazardous conditions reflecting governance neglect in marginalized areas.
Participant 17: Shrinking public space at Bonnerworth Park.	**Contraction of public space**	-Participant 17: Brought up the issue of Bonnerworth Park and how this plan has decreased public space in the city.	Privatization and loss of communal areas, disproportionately affecting the poor.
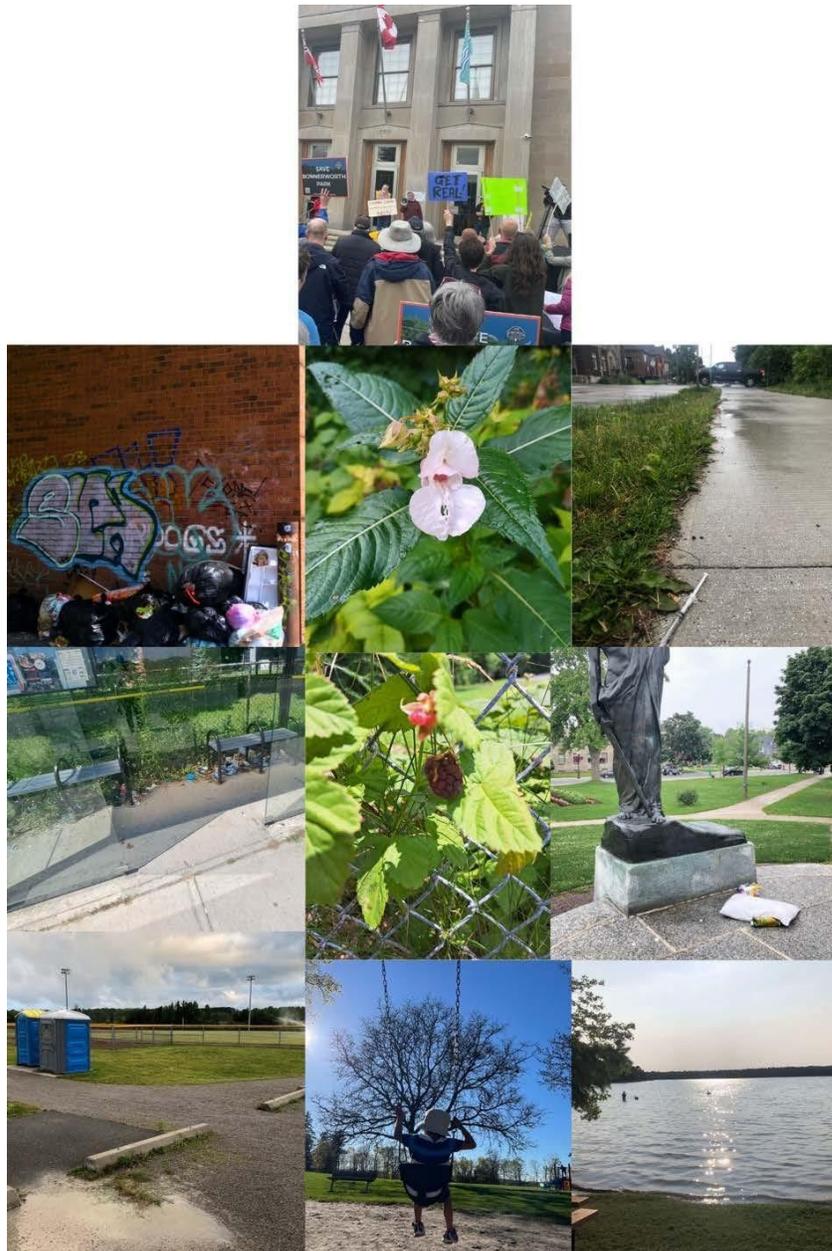
Figure 7: August Photovoice Session Participants' Photos

October 11ᵗʰ, 2024, Final Photovoice Session

The October 11th session was unique in that we asked participants to reflect on the

board themes they thought emerged across the sessions and they identified systemic

inequality and racism, explicitly referring to the impacts of colonialism and how this has

shaped relationships to nature, barriers to engaging in municipal governance and in

equitable urban development. Figure 8 below presents a collage featuring one photo

contributed by each participant who attended the session.

Table 8: Key Themes in October 11, 2024, Photovoice Session

Participant and image descriptions	Themes	Participant Examples	Participants' Interpretations
Participant 7: Spiked library ledges. Participants 19 & 6: Slanted, unwelcoming benches. Participant 14: Bridge lacking pedestrian pathways.	**Hostile Architecture**	- Participant 7: Mentioned the use of hostile architecture at the library to prevent the unhoused from loitering. - Participants 19 and 6 also discussed how certain public spaces, like benches, are intentionally uncomfortable. Participant 14: Sometimes the way bridges are constructed – without pedestrians in mind – can be experienced as hostile architecture.	Cities employ hostile architecture to discourage homeless individuals and marginalized groups through both unfavorable bodily experiences and restricted physical zones. The built environment functions as exclusionary and targeting devices against specific population groups.

| Participant 6: Abandoned cars in a vacant lot. | Environmental Pollution & Responsibility | - Participant 6 highlighted the environmental harm caused by abandoned vehicles in public spaces and questioned the responsibility for their removal. | Several environmental issues affect urban areas because of poor waste disposal and prolonged car and garbage abandonments and different forms of contamination. According to research findings both public space maintenance responsibilities lie with the community and community |

			members seek environmental responsibility from others.
Participant 18: Rotary Trail (forest path). Participant 4: London St Bridge (serene waterfront). Participant 2: Kayaking on Cavan Creek.	**Connection to Nature & Healing**	- Participant 18 described the healing aspects of natural areas like the Rotary trail, while - Participant 4 spoke about the peaceful environment around London Street Bridge. -Participant 2: Shared a picture of kayaking on Cavan Creek, a little-known oasis close to the city.	People utilize nature trails and parks to create emotional links with nature while practicing spiritual exercises. The participants emphasized a need for protection of recreational areas since these spaces offer therapeutic benefits which especially help groups who lack safe options for relaxation.
Participant 6: Graffiti demanding governance action. Participant 10: Urban development ignoring Indigenous input.	**Systemic Inequity & Governance**	- Participant 6 questioned the lack of accountability in addressing environmental issues, such as abandoned vehicles. - Participant 10 critiqued the failure to integrate Indigenous knowledge in urban planning.	Urban governance equality issues received concentrated attention during the examination period because marginalized communities experienced exclusion from decision-making processes. The participants demanded an inclusive governance system that takes responsibility for both fighting environmental problems and social inequalities.
Participant 19: Community-planted fruit trees. Participant 4: Protest signs for participatory	**Community Empowerment & Social Justice**	- Participant 19 expressed satisfaction with the community- led efforts to plant fruit trees and manage stormwater, while - Participant 4 discussed the	Community-driven initiatives, such as tree planting and environmental logistical projects enable citizens to secure control of public areas by combining forces to resolve environmental and community concerns. The initiatives work toward

budgeting.		importance of participatory decision-making in public spaces.	environmental justice

		participatory decision-making in public spaces.	alongside fair public resource allocation.
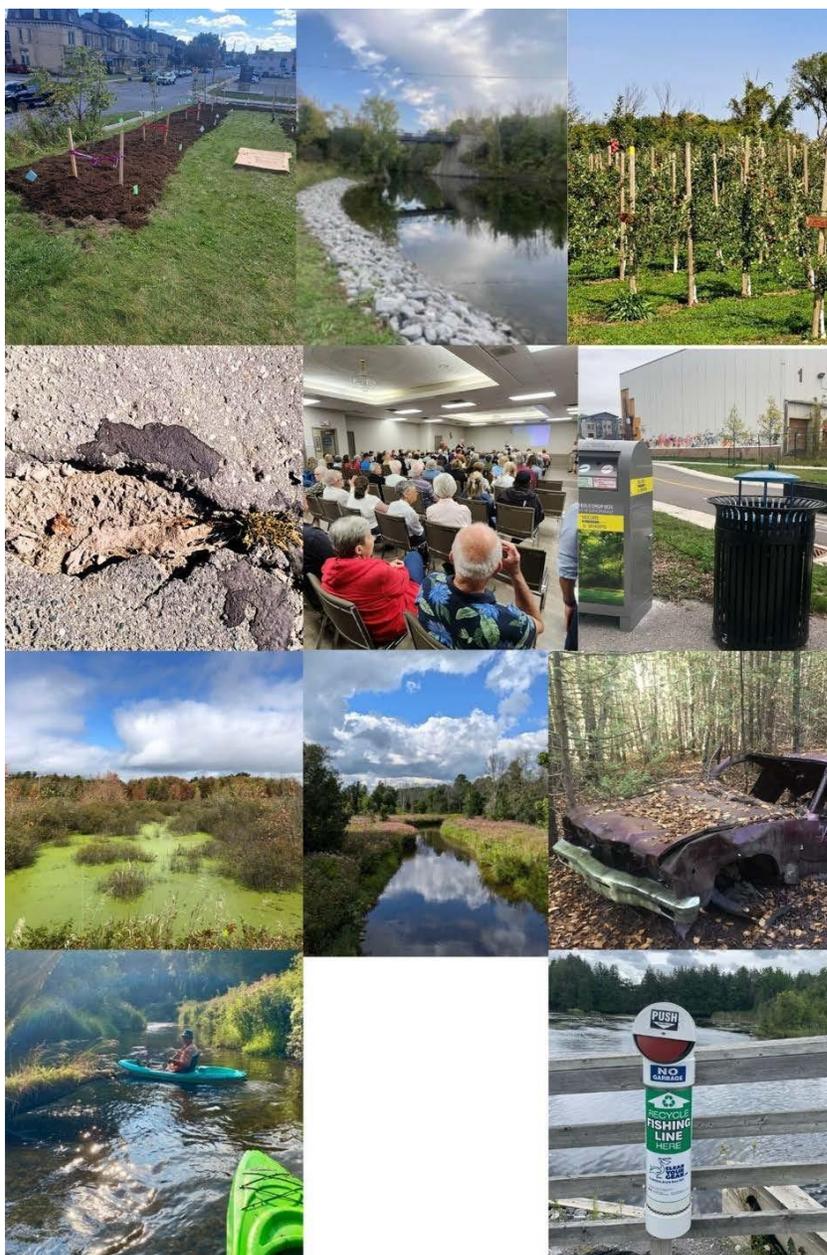
Figure 8: October Photovoice Session Participants' Photos

Seasonality played a significant role in shaping the themes that emerged throughout the

sessions, revealing the dynamic and evolving nature of environmental justice concerns. For

instance, homelessness was a consistent issue across all four

instance, homelessness was a consistent issue across all four seasons, with participants repeatedly emphasizing the lack of safe spaces for vulnerable populations, especially in winter.

However, it was during the August and October sessions that other environmental concerns, such as visible waste and drug use, became more pronounced. This shift in focus can likely be attributed to the changing seasons— with the warmer weather came increased mobility (e.g. snow melt) it became easier to observe the accumulation of discarded items, including drug paraphernalia and needles, in public spaces like parks.

This seasonal variation highlights the interconnectedness of environmental justice issues, highlighting how factors that may be hidden or less visible in one season and can become pressing concerns in another, depending on the season.

Unifying our voices through Art & Poetry

In the final session of October 2024, one of the participants, Marion Little, shared a "found poem" created from reflections by participants of the project throughout the year. The poem, inspired by the themes and issues discussed in the final session, served as a powerful way to unify the voices and concerns of all participants. This creative expression reflected the collective experiences and insights that had emerged from the group. In addition to the poem, local muralist Jason Wilkes was invited to visually capture the essence of the participants' discussions through a mural. The mural incorporated key words, phrases, and visual representations based on the shared reflections and observations from the session, further amplifying the voices of the participants and contributing to the ongoing conversation about environmental justice.
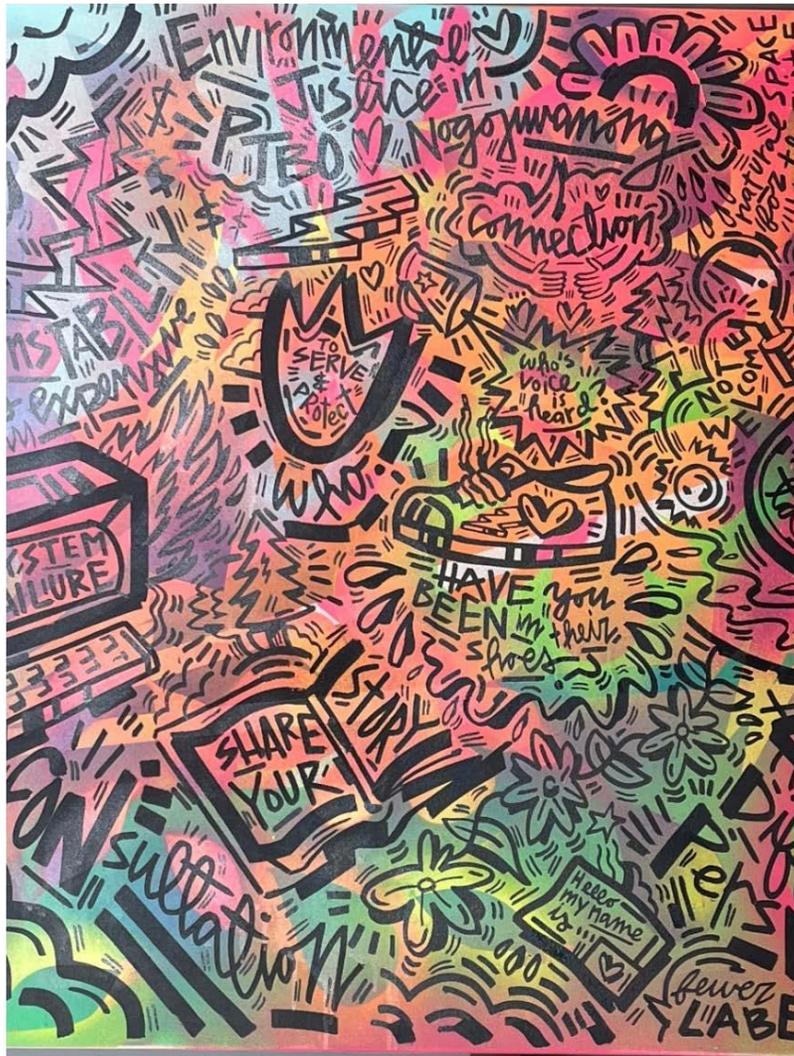
© Jason Wilkins

Photo Voices *by © Marion Little*
Gazing into the darkness last night –
Did you see the constellations, the shining planets, the first quarter moon...
Did you see the northern lights humming veils of colour across the sky?
There are no words.
Some saw it all, and some remembered, and some are still waiting.
Which brings us here,
Alive with wonder and gratitude for life.
Drawing out perspectives and creativity.
Distinct visions,
Woven into collectivity.
Connectivity,

Our community
Through each other's eyes and minds and hearts.
Thinking about the things we cannot see.
Holding Grace for what's there – what we have yet to perceive.

In the middle of the forest, and places where forests once stood,
We have all this architecture,
And, we're still intertwined,
Public goods and goodness, public ills and illness.
What is being depicted in all these images?
What story are we telling? What questions are we asking?

Inwendaamin oki: how are we related to the land?
The turning year, turning together.
What brings us joy?
What brings us despair?
What draws us into connection?
Where is there fracture?
Where is there wholeness?
What are we reflecting together?

Connection to this place.
Connection to each other,
To community,
To diversity,
To complexity.

Sharing space and holding curiosity about who's voice is heard and who belongs.
Whose fears hold us apart?
And who's responsible for holding space and belonging?
For responding to crises and brokenness?
For preserving Life
On the street,
And in the forest,
And beside the river that beats like a heart?

The consequences of calling for help are not the same for everyone.
Systems and structures and policies
Are written
To serve some at the expense of others.
We're asking new questions
About who counts,
And who's counting?

Who's going to play pickleball in a new pickleball court,

Or hockey, in a new arena,
If they're struggling to survive:
To seek nourishment, water, shelter?
Recreation and play matter.
Housing matters.
Well-being matters.

They say, "Money talks."
Its vocabulary is loud, blunt, limited.
People can be all that too, but people don't just talk.
People tell stories and take pictures and make art
People laugh and sing and listen.
People make meaning.
People belong.

A neighbor stood up at that meeting and complained about the tent city
And all the garbage
And said her children shouldn't have to see it.
She didn't want sleeping cabins either.
She just wanted all the homeless people to go away.
People without homes also want homelessness to go away.
In the end, she agreed that permanent housing is the only realistic solution.
But, what's the money say about that?
Where's the action?

Everyone needs a place to go and be well.
Shame and judgement and resentment interfere
With our ability to hear,
To listen,
To respond,
To offer and experience true belonging.

Land use plans aren't the same as land relationship.
These dynamics of power over-ride the sense-making.
Land use only caters to a few stakeholders.
Land relationship responds to all,
Requires us all.
Calls us into reciprocity.

So, where's the Truth? Where's the Reconciliation?

Land relationship IS "Land Back."
Consultation is dialogue.
It means sitting in circles like this one and listening.
It means:

We see you.
We hear you.
We honour our relationship with you.
We will work together to make it happen?

But, these old industrial dynamics of power override the sense-making.
How do we tell a new story that includes all voices?
Included into what?
What version of inclusion and justice are we asking about?

Mino-Bimaadziwin: the good life.
The Grandfather Teachings are waiting on a path
That's unsettled.
Reconnected.
Reconciled
The land and the water,
The human people and the non-human people
All humming
With heart, with feeling,
With the deep voice of needs rising up in all life,
Inviting us beyond survival
Into thriving.
Singing to the Northern lights in a clear autumn sky:
What does it mean to be a good Treaty Person?
What does it mean to be a good ancestor?

So, why do those government structures still treat us like we don't know our own needs?
What is our responsibility?
Have our leaders and administrators never put themselves
In the shoes
Of people who are suffering?
I'm not far from that myself, and I'm disturbed our councilors and mayor and premier and other elected officials
Can't seem to find any shoes other than their own.
It's a catastrophic failure of imagination,
A devastating absence of empathy.

I looked into it once, and the money for people with disabilities can only fund about 1/3 of the cost of rent in Toronto, and nothing else, and those voices often go unheard.

What IS our responsibility?
All these people get elected to office and then we're mad at them.
I've been wondering: do we have the right training and policies in place

So they can listen well to more than 10 people at a time?
So they can listen well to hundreds and thousands and millions of people?
And trees?
And water?
And non-human people?

The biggest environmental injustice,
The biggest injustice generally,
Is that our government system has failed living communities.
But, industrial colonial expansionism was never designed for living communities
or the well-being of common people or green spaces held in the public commons.
It was designed for resource extraction and unfettered corporate progress.

Let's keep in mind that structures and systems
have no feelings,
No needs,
Just policy.
Only living beings have feelings and needs.
That means people continue to suffer
Until
Policy is written in service to community needs,
Human needs,
The needs of the living world in community with us.
Structures and systems follow policy.
So, we call for more needs-based policies.

That new park downtown is just one big slab of cement.
It's no place for living creatures. There's not a speck of shade.
If it was actually meant for people,
There'd be bike stands, and drinking fountains, and benches, and shade, and easy access,
And a reason to go there:
A refuge,
A welcoming sanctuary,
A public commons.
We'd see our hearts and lives and well-being reflected, animated, uplifted.
Unsettled.
Reclaimed.
Re-connected.
Nurtured.

As we shift beyond the blaming, shaming stereotypes that block listening,
That cause fracture and describe fragmentation,
I don't know what's next. I don't have the answer.
There are so many kinds of homelessness and dislocation:

Some of us are well-housed, but living as though we don't belong.
As though we don't matter.
As though we don't impact each other and the world.
As though "home" doesn't matter

What does it mean to truly be at home?
In your body? In your neighbourhood and on our streets?
In our community? In our watershed? In our region?

Connection is a felt-sense:
Somatic,
Embodied.
Weaving that into our worldview is part of the solution.
The healing.

Which brings us here,
Bearing witness to our shared humanity,
And the otherwiseness in our voices.
Alive with wonder and gratitude for life.
Drawing out perspectives and creativity.
Distinct visions,
Woven into collectivity.
Through each other's eyes and minds and hearts.
Thinking about the things we cannot see.
Holding Grace for what's there – what we have yet to perceive.

Theorization (Themes Across Sessions)

The following synthesis identifies eight overarching themes that emerged consistently across all four Photovoice Sessions, as collaboratively defined by co- researchers during participatory analysis. These themes reflect shared experiences of environmental injustice in Peterborough/Nogojiwanong, grounded in both visual data (participant photographs) and critical dialogue. Each theme is presented below with its associated codes, a summary of co-researchers' interpretations, and its connection to environmental justice literature— highlighting how participatory knowledge production extends, complicates, or challenges existing scholarship.

Table 9: Overarching Themes Identified

Theme	Code	Explanation	Literature Connection
Privatization of Space	Neglected Spaces, Environmental Harm, Pollution, Waste, Hostile Architecture, Community Art, Connection to Land	This theme addresses the environmental degradation of public spaces, including pollution, waste accumulation, and poorly maintained areas. It also captures the design of spaces intended to deter certain behaviours (e.g., hostile architecture). It also captures how public spaces are increasingly designed, managed, or neglected in ways that restrict access, particularly for unhoused individuals, disabled people, and other marginalized groups	This connects to the concept of environmental injustice, where marginalized communities often face disproportionate exposure to environmental harm. The themes of environmental degradation and public space overlap with environmental racism and the distribution of environmental burdens among different communities.
Exclusion	Exclusion (based on gender, race, Indigenity, income, ability) & Limited Access, Colonialism & Inequity, Lack of Accountability in Governance	This theme looks at the unequal access to public resources and spaces. It highlights how marginalized groups face exclusion from environmental resources and decision- making processes, often due to systemic inequities.	The theme is closely linked with distributive and procedural justice, both of which fall under environmental justice. Marginalized groups lack access to decision-making and disproportionately suffer from environmental degradation, a reflection of concerns addressed in works such as that of Waldron (2018), in which racialized and Indigenous Peoples encounter obstacles in accessing fair and equitable access to

			planning for the environment.
Sanctuary	Community Empowerment, Sanctuary & Peace, Public Space Value	The theme is about advocating for public spaces to serve as a unifier for communities, healing, and empowerment. These inclusive spaces enable individuals to forge meaningful connections, cultivate personal and communal well-being, and strengthen their sense of belonging—transforming environments into catalysts for social restoration and resilience	Restorative justice and participatory action research (PAR) resonate with this theme. Wang & Burris (1994) present an example of how community empowerment through participatory processes can allow for critical dialogue and activity and in that manner, allow for transforming abusive spaces into healing spaces and spaces for community empowerment.
The Housing and Homelessness Crisis	Housing Crisis, Homelessness, Shelter Issues	The theme touches on the housing crisis and its accompanying concerns, such as unaffordable housing and access barriers for the unhoused, and ventures into the difficulty of accessing safe, secure housing and shelters.	The theme aligns with the distributive justice principle, under which communities enjoy disparate access to housing provisions. Canadian Definition of Homelessness categorizes persons residing in homelessness and recognizes housing-related policies' failure in addressing systemic inequity, specifically for marginalized communities.
Mental Health and Wellbeing in Neglected Environments	Mental Health, Wellbeing, Stress, Vulnerable Populations	This theme explores how environmental neglect, such as unsafe or poorly maintained spaces, negatively impacts mental health, particularly for vulnerable populations.	Environmental neglect leads to mental health challenges. Schlosberg (2007) discusses how environmental harms not only affect physical wellbeing but also contribute to stress and

			anxiety, especially in marginalized communities that experience high levels of environmental degradation. This aligns with the connection between environmental justice and public health .
Environmental Degradation	Pollution, Trash, Infrastructure Decay	Focuses on the visible signs of environmental neglect—dumping, pollution, decayed infrastructure—especially in low-income areas.	Environmental equity failures; critique of cosmetic urbanism vs. real transformation (Pulido, 1996).
Lack of Accountability in Governance	Municipal Inaction, Policy Bias, Policing of Space	Critiques governance structures that fail to equitably maintain public spaces, provide services, or include marginalized voices in planning.	Procedural injustice and systemic governance inequality (Schlosberg, 2007; Bullard, 1996).

Privatization of Space

The theme of privatization of space emerged across multiple photovoice sessions. Participants repeatedly highlighted how public areas in Peterborough—parks, sidewalks, benches, libraries, and trails—are increasingly marked by exclusionary design, institutional neglect, and the criminalization of presence, especially for unhoused and disabled individuals. This section explores the theme of privatization of space as it emerged through participants' reflections on their experiences with homelessness, hostile architecture, ableism and exclusion

in public spaces, community spaces, community art as a source of resistance, and connection to place, nature, and land. These findings illustrate how public spaces in Peterborough are increasingly regulated, surveilled, or neglected in ways that marginalize vulnerable populations, while also revealing how participants reclaim and resist these dynamics through acts of community engagement and place-based connection.

Participants indicated that public spaces should open and accessible to everyone, free from constraints imposed by public or private interests. In North America, public spaces are typically distinguished from private ones based on ownership, with private property granting the right to exclude others (Smith & Low, 2006). However, this distinction can become blurred as "many constituents of public space are privately owned, managed and regulated elements of the private sphere" (Smith & Low, 2006, p. 5). Instead of embodying freedom, inclusivity, and community, public spaces now often serve to delineate where specific groups or certain "kinds of people" are permitted. Privatized areas, in particular, convey implicit messages about which behaviours, individuals, or activities are unwelcome or discouraged.

The Housing & Homelessness Crisis

The theme of privatization of public space was driven by a focus on homelessness and anti-homelessness laws to demonstrate how visibly homeless population are excluded from public spaces. Not all individuals experiencing homelessness engage with public spaces in the same way (Gaetz et al., 2012). Therefore, examining the relationship between homelessness and public space requires specifying the type of homelessness being addressed. The "Canadian Definition of Homelessness" identifies four main categories: (1) Unsheltered—those who are absolutely homeless, living on the streets or

in areas not intended for human habitation; (2) Emergency Sheltered—those using overnight shelters or shelters for individuals affected by family violence; (3) Provisionally Accommodated—those in temporary or insecure housing; and (4) At Risk of Homelessness—those whose housing or economic circumstances are unstable or unsafe (Gaetz et al., 2012). The homeless population being referred to hereinafter is those 'unsheltered' a group of people that includes those who are unhoused and are not staying in shelters (Gaetz et al., 2012). In most cases, these are "people living in places not intended for permanent human habitation" (Gaetz et al., 2012, p.3). This includes individuals who reside in private or public areas without authorization, such as vacant buildings or public spaces like parks. The purpose of clarifying how the term "homeless" will be used is essential, as it prevents misunderstandings that could apply these observations to all people experiencing homelessness. The focus on those who are unsheltered is because of their visibility in public spaces due to their lack of private spaces hidden from public view (see Figure 9).

Figure 9: A Bicycle as Storage and Survival. A Glimpse into the Housing Crisis in Downtown Peterborough photographed by Participant 22

People who are homeless face multiple and intersecting forms of exclusion, ranging from criminalization, to being made to feel unwelcome in private and public spaces through intimidation, to being rendered invisible (Sylvestre, 2010). These themes were all identified by participants as ways in which homeless people were made to feel unwelcome in Peterborough/Nogojiwanong's public spaces. Through obstacles in the physical environment and the enforcement of laws, parks, libraries, and street corners become areas of restricted access.

Trespass and loitering laws are two of the most common ways to regulate access to both public land and private places open to the public (Beckett & Herbert, 2009). Trespass authority is becoming a broader, more potent law enforcement tool that effectively banishes people from specific areas. In 2019, in response to the emergence of tent city, the City of Peterborough/Nogojiwanong passed the Parks and Facilities Bylaw making it illegal to sleep in parks or set up tents without a permit (City of Peterborough, 2019). The bylaw's enforcement primarily targets people experiencing homelessness, who have no choice but to sleep in public spaces. Individuals who receive trespass exclusion orders have no opportunity to challenge them. The City of Peterborough's Parks website provides no guidance on how to request a permit to sleep in a park, but it does offer clear instructions on how to "report prohibited tenting in a City park" (City of Peterborough n.d.). These types of laws are one of the driving forces blurring the boundaries between public and private spaces. Without access to private spaces, visibly homeless individuals in public areas become "subject to extra attention by the criminal justice system not so much for what they do, but for who they are and where they are" (O'Grady et al., 2011, p. 21). This focus reflects a

subtle enforcement aimed less at specific actions and more at excluding certain individuals

from certain spaces. Figure 4.2 is a photo taken by Participant 22, highlighting the city of

Peterborough's efforts to privatize space by installing fences, barriers, and trespass signs at a

former encampment site for people experiencing homelessness.

Figure 10: Defiant Spirit "Across street from 210 Wolfe Street, City signs prohibiting access to space or thermal means of survival, a defiant footprint is emblematic of how human spirit takes precedent over rules of "class order""- Participant 22

Marginalized individuals who live in spaces without formal addresses are often pushed

to the fringes of both public and private spheres, emphasizing their social exclusion. This lack

of a recognized address symbolizes their invisibility and the absence of legitimate space

within society. As Participant 22 observed, "*I'm discovering so often that the spaces the most*

marginalized citizens of Peterborough/Nogojiwanong are left to inhabit don't have any

specific or apparent 'address.' Which I guess, makes poetic sense, doesn't it?" (personal

communication, February 6, 2024). This comment highlights how the absence of a formal,

identifiable location reflects the broader social marginalization faced by these individuals,

reinforcing their displacement and the lack of support or recognition they receive in urban

spaces. The absence of an "address" symbolizes not only a physical dislocation but also a

deeper social disconnection, where their presence is ignored or deemed illegitimate by

societal standards.

Participants' demand for shared spaces, such as public artwork or community gardens,

reflects an understanding of public space as more than just a physical location. These spaces

influence community wellness by countering exclusion and marginalization, and fostering

social healing, connection, and collective action. Studies show that community participatory

action and community empowerment highlight communities' need to take over spaces in an

attempt to build healing and resilience (Nelson et al., 2009). Participant 8's call for greater

public involvement in environmental community work reflects a desire for empowerment

through meaningful participation in decision-making processes—specifically, public input

on how shared spaces is designed, used, and maintained**.** This example illustrates how

community members advocate for both procedural justice through inclusive participation,

and restorative justice, by seeking to heal and reclaim neglected urban spaces**.** During the

February Photovoice Session, the need for responsiveness from municipal officials who had

neglected the interests of marginalized communities, particularly in areas such as waste

management, public restrooms, and the maintenance of safe public spaces was emphasized.

For example, Participant 17 questioned, "Who is responsible?" when discussing the

deterioration of public spaces, including abandoned lots filled with garbage and neglected

settlements used by unhoused individuals in central areas of Peterborough (see Figures 11).

This concern reflects a broader call for restorative justice, highlighting the need for

accountability in addressing environmental degradation and the failure of authorities to

restore these neglected areas (Simons, 2021). The emphasis placed by participants on

restorative justice reflects not only a desire to repair present-day harms but also a deeper

need for healing from long-standing structural injustices. While not all participants explicitly

mentioned colonial legacies, the ongoing exclusion of Indigenous voices and the lack of

recognition of Indigenous stewardship in urban planning speak to unresolved histories of

land dispossession. These silences point to the need for future work to engage more directly

with decolonial approaches to urban and environmental justice. Participant 17's reflection

about "sickness in the city's body" reflects a deep-rooted social issue— insufficient

resourcing of public spaces which disproportionately impacts marginalized groups.

Participants' calls for reclaiming such spaces in ways that ensure safety, accessibility, and

inclusivity reflect an effort to foster environmental and social healing. That is at the core of

restorative justice, the mending not only of immediate wrongs but building towards healing

relations and (re-)restoring dignity to victimized or harmed? groups (Braithwaite et al.,

2019).

Figure 11 a (above) and b (below): Abandoned Dilapidated Building with Surrounding Waste on Bethune and Aylmer Street photographed by Participant 17

Hostile Architecture

Hostile architecture emerged as a key community concern throughout the photovoice sessions. Hostile architecture refers to physical features in public spaces that make it difficult to use objects for purposes beyond their original design (De Fine Licht, 2017). This phenomenon, known as defensive urban design, involves the creation of "hostile, unpleasant, or exclusionary architecture is an intentional design strategy that uses elements of the built environment to guide or restrict behavior in urban space as a form of crime prevention, protection of property, or order maintenance" (Chellew, 2019, p.19). Hostile architecture often appears in the form of modifications or specific designs to existing infrastructure that prevent its previous uses. Examples include armrests placed in the middle of benches or spikes on window ledges, often described as 'defensive urban designs' (Chellew, 2019). Hostile architecture can also feature designs added to a space to deter possible users. Figure 12, taken by Participant 7, depicts a bench with armrests in the middle designed to deter loitering or sleeping. The armrests in the middle of benches prevent individuals from lying down comfortably, thus restricting certain behaviors in public spaces. Hostile architecture also involves the removal or absence of objects that would make these spaces usable (De Fine Licht, 2017). Hostile architecture poses greater challenges when recognizing that individuals experiencing unsheltered homelessness rely on public spaces for rest. Figure 13, taken by Participant 22, illustrates this in Quaker Foods City Square, a park in downtown Peterborough/Nogojiwanong. The photo highlights a lack of shaded areas, designed to deter people experiencing homelessness from gathering by offering no protection from the sun. Hostile architecture not only restricts the use of public spaces but also creates obstacles for

those who depend on them for basic survival. These design strategies aim to limit or control

behaviors by altering the built environment (Chellew, 2019). The primary purpose of these

modifications is to "guide or restrict behavior in urban space as a form of crime prevention,

property protection, or order maintenance" (Chellew, 2019, p.21). All of these changes to

physical space restrict how people experiencing homelessness can use them, making it

difficult for them to find suitable places simply to exist.

Figure 12: A bench with armrests in the middle taken by Participant 7

Participants' narratives reveal how public spaces, designed initially for community use, have

become essentially privatized and even hostile towards certain groups such as the unhoused.

Participant 8 expressed the lack of care for such spaces, that cater to the needs of all people

despite their economic situation, citing the loss of opportunity for community use and restoration of environments. Participant 10 shared, in a similar voice, about such spaces' impact on community mental well-being in terms of shared feelings of frustration, exclusion, and emotional fatigue, particularly among those already navigating poverty or housing instability. These feelings reflected a collective sense of being unwelcome or unseen within their own communities, deepening the psychological toll of spatial neglect. These experiences resonate with restorative and community-led approaches to justice (Schlosberg, 2007), which emphasize equitable access to public space and the collective responsibility for its care. There is a demand for proper administration of public spaces by participants is a direct reflection of the environment and environment-related social theory of justice, with a demand for equitable access to safe, clean, and well-maintained public spaces. Environmental degradation and its intersection with social and economic marginalization of certain groups is a recurring theme, with the February 9th session particularly highlighting such injustices through discourses of neglect, pollution, and garbage accumulation. Participants' contribution brings about a participatory urban environment with marginalized groups at its center in terms of decision-making for public spaces.

Beyond physical exclusion, participants also cited surveillance in perpetuating spatial inequities. Racialized and low-income groups are disproportionally targeted in surveillance in urban spaces, increasing their precarity in the built environment. Participant 17 spoke about her frustration with over-policing of people experiencing homelessness in downtown spaces where increased surveillance efforts, such as cameras and enhanced police presence, were deployed in order not to support but to contain social life. Policing of space in such a

manner is consistent with broader analyses of procedural environmental injustice, where

decision-making bodies systematically disempower marginalized groups in decision-making

over the built environment while exposing them to increased surveillance and control

(Schlosberg, 2007). Surveillance and hostile design are instruments of environmental

injustice in perpetuating the stratification of the built environment based on economic and

racial divisions. The distribution of harm in the built environment is not, according to Pellow

(2000), necessarily a matter of accident but is reflective of deeply ingrained structural

inequities in allocating who is entitled access to the built environment.

In Peterborough/Nogojiwanong, the intersection of intensified surveillance and

exclusionary design makes the built environment inaccessible to marginalized groups and

contributes to a process of displacement and environmental injustice. Not only is such

exclusion a denial of vulnerable groups' entitlement to the city, but it also reflects broader

socio-political forces that reinforces hierarchy over the built environment.

Figure 13: "Right to occupy space with safety and with dignity. Search for shade belongings (lower right) of person in only shade spot at Quaker Park."- Participant 22

Ableism and Exclusion in Public Spaces

Urban environments are often structured in ways that reinforce ableism, both through the physical design of public spaces and the exclusionary policies that shape their accessibility (Reber et al., 2022; Smith et al., 2021). Ableism in public spaces manifests not only in the absence of necessary infrastructure, such as accessible sidewalks and restrooms, but also in the implicit social and psychological barriers that make urban life even more challenging for people with disabilities. In the photovoice session, Participant 6 voiced frustration over the inaccessibility of public spaces in Peterborough/ Nogojiwanong, emphasizing the lack of basic infrastructure that would allow people with mobility impairments to navigate the city freely. The failure to provide such accommodations is not just an oversight—it is a systemic form of environmental exclusion that prevents disabled individuals from fully participating in urban life (Vanderschuren & Nnene, 2021).

Participant 8, a disabled woman, further highlighted how environmental neglect in lower- income areas exacerbates these barriers. She described how public spaces—such as parks and community gardens—are often designed without consideration for those with mobility impairments, citing a lack of seating, uneven ground surfaces, and narrow pathways that turn these spaces into obstacles rather than inclusive gathering places (Figeroa & Ulibarri, 2024). She uses a folding rollator walker to navigate these inaccessible spaces (see Figure 15). This exclusion is particularly troubling given that public spaces are meant to foster community and belonging. "*I feel disconnected from the community because I can't enjoy the spaces that are supposed to bring people together*" she shared. Ableism in public space, specifically through the lens of hostile architecture.

They pointed to infrastructure intentionally designed to deter certain behaviors, such as public benches with armrests that prevent individuals from lying down. While such measures disproportionately target unhoused populations, they also create additional barriers for people with disabilities who may need to rest while navigating public spaces. Participant 22's photograph visually captured this reality, depicting a sign outside of a store discouraging the use of flower planters for use of sitting or rest (see Figure 14). This form of "architectural policing" (see Figure 16) not only restricts physical access but also reinforces the broader social marginalization of disabled individuals.

Figure 14: 'Do Not Sit Here' Sign in Storefront Window photographed by Participant 22

**Figure 15: "Navigating Barriers: Folding Rollator Walker with Seat in Public Space"
Photographed by Participant 8**

Figure 16: Reserved Access: Accessible Parking Designated for Library Users Only
Photographed by Participant 22

Ultimately, the exclusion of people with disabilities from public spaces reflects a larger

pattern of environmental injustice in which already marginalized communities— whether

due to disability, race, or economic status—face compounded barriers to participation in

urban life. When governments and city planners fail to prioritize accessibility, they

perpetuate a cycle of exclusion and neglect, further deepening social and environmental

inequities.

Community Spaces

Community spaces (or the lack thereof) emerged as a key community concern throughout the

photovoice sessions. Participants discussed an accumulation of garbage, illegal dumping, and

degradation of the environment in a range of public spaces,including parks, streets, and derelict plots. In the February session, Participant 17 bore a powerful testimony of a "demo site" at Bethune and Aylmer, stating it to have been an "abandoned lot full of trash" and squatted in.

Participant 14 shared a similar observation, highlighting the presence of trash near a piece of street artwork. They reflected on the contrast between the artistic expression and the surrounding environmental decay, emphasizing the disconnect between efforts to beautify public spaces and the neglect of their upkeep. The disrepair of public spaces in such instances is a metaphor for larger concerns regarding environment and environmental injustice in that marginalized groups disproportionately suffer from disinvestment (Schlosberg, 2007). This could be understood as a lack of distributive justice in that it addresses unequal burdens placed on certain groups, namely racialized and poor communities, in relation to the environment (Bullard, 1996; Harris, 2019). In Peterborough/Nogojiwanong and similar communities in general, marginalized groups occupy spaces characterized by environmental degradation, such as derelict plots, poorly maintained streets, and illegal dumping sites (Waldron, 2018). These spaces not only suffer from poor maintenance, such as inadequate garbage management, but also lack essential social and environmental infrastructure. This ongoing neglect perpetuates a cycle of inequity and harm.

Similarly, Participant 8 reported a trash-lined ditch with such items as discarded appliances and household trash. The trash in such a location indicated a lack of regular trash removal, stigmatizing such residents in close proximity even more. The neglect of municipal waste services to clean these areas was experienced as a procedural injustice, where marginalized groups are systematically omitted in decision-making about the

environment and do not hold such necessary political power in order to pressure municipal intervention (Schlosberg, 2007).

Armour Hill, formally Ashburnham Memorial Park originally a space for recreation, is where illegal dumping was a practice, with broken trails and strewn trash (see Figure 4.10). Participant 12, speaks to such excess dumping at Armour Hill her efforts of making the space more beautiful and healthier for people and wildlife. The decline in such spaces in such public parks not only limits such spaces' availability to such marginalized residents but reinforces such inequities in urban spaces, where such spaces receive fewer resources for upkeep and rejuvenation. The literature on such environmental justice points out how such space inequities reflect such deep systemic biases, where investment in such spaces is directed away from already marginalized spaces (Pulido, 1996).

Figure 17: "This is an image of some of the garbage dumping behaviour that happens on Armour Hill, and is a snapshot from a park cleanup on April 13, 2024. The group that I co- founded, the Ashburnham Memorial Stewardship Group, is advocating for positive changes that will increase stewardship behaviours within the Ashburnham Memorial Park (known as Armour Hill)"-Participant 12

Figure 18: Vandalized Trail Sign and Map Marked with Graffiti photographed by Participant 13

Finally, all participants noted that the redevelopment of Bonnerworth Park to include 16

pickleball courts was evidence that the views of marginalized community members were

disregarded by City Council (see Figure 19). This park was used by many of the photovoice

participants as a greenspace shared by community members of all generations. It's

redevelopment—one which was highly contentious across the Peterborough/Nogojiwanong

community was experienced as the privatization of a

community space in a way that would only be enjoyed by a small subsection of the

Peterborough/Nogojiwanong community (The Peterborough Examiner, 2023).

Figure 19: Community protest of pickleball park development in front of City Hall photographed by Participant 17

Community Art as a Source of Resistance

Similarly, public art was presented as a form of environmental resistance, with Participant 14

emphasizing the role of street murals and artistic expressions in occupying derelict spaces (see

Figure 20). The juxtaposition with polluted and decaying cities and spaces brought out the

potential and limits of artistic interventions in struggles over environmental justice (see Figure

21). Despite the ability of art to symbolically resist environmental disregard, participants

argued that systemic reform involves structurally intervening in policies and not only in aesthetic enhancement. The criticism is in keeping with environmental justice literature, concerned with the danger of neoliberal urban planning co-optation, where creative ventures are deployed in a way that conceals greater social inequities and not in a way that transforms them (Pulido, 1996). Another characteristic of participation in the community was the demand for participatory municipal governance. The participants resented a lack of municipal participation by marginalized groups in environmental decision-making. Participant 6 emphasized the need for participatory urban planning processes where residents are involved in debates on the distribution of environmental resources and the design of spaces in the public sphere. The move is in keeping with procedural environmental justice, whose advocates support democratizing environmental decision-making to secure participation and a role in decision-making in policies in their day-to-day worlds among affected groups (Schlosberg, 2007).

Figure 20: Graffiti and Dumping on Building Wall at Charlotte and Alymer Street photographed by Participant 22

Figure 22: Picasso & Garbage "A sacred space for some people & a local park community space"-Participant 18

Figure 21: Participant 22. "Music fest: belonging of inclusion. Free concerts

Connection to Place/Nature/Land

All participants highlighted a strong connection to place, nature, and land as a defining aspect of community life. This connection to place describes the deep relationships people form with their surroundings through historical, cultural, spiritual, environmental, personal, and social lenses (Ardoin, 2006). Many participants emphasized the significance of feeling rooted in their communities, expressing a sense of belonging, pride, and ownership over their shared space (See Figure 23). Elements that fostered this place attachment included the community's natural beauty, such as parks, trees, and flowers, as well as a general atmosphere of acceptance and mutual respect among residents (see Figure 24). Participants viewed these characteristics as strengths that enhanced community well-being and cohesion, offering a foundation to further build upon.

Figure 23: London Street Bridge "I love that I can walk from my house & connect with the trail, nature, the river and wildlife that inhibits this space. Love to walk the trails."

Figure 24: "Fruit Trees (apple, pear & cherry) at 1001 Talwood community garden part of Peterborough/Nogojiwanong Community Fruit Trees"- Participant 19

However, participants also shared concerns that compromised their sense of connection to place. Uncertainties around the privatization of communal spaces—such as questions over whether areas were under the ownership or control of residents, or housing authority management—often undermined their sense of community security. Social and physical disorder, marked by signs of encampments, drug use (such as discarded syringes), and litter throughout trails and streets, further eroded feelings of attachment (see Figures 25, 26 and 27). While some participants interpreted the presence of encampments and discarded syringes in public spaces as symbols of disorder or neglect, others viewed these markers as evidence of a deeper systemic failure namely, the dehumanization of people who are unhoused and those who use drugs. These differing interpretations highlight how dominant

narratives often criminalize or pathologize marginalized groups, rather than addressing the structural conditions that contribute to poverty, addiction, and housing insecurity. As one participant noted, these visible signs of urban inequality reflect a broader societal belief that certain populations are expendable and undeserving of care or intervention. This insight challenges policymakers and community leaders to reframe such issues not as public nuisances, but as urgent calls for justice-oriented responses.

For some participants, heightened awareness (or perception) of crime and violence in the neighborhood increased participants' perceptions of insecurity, detracting from their sense of belonging. A striking visual of this tension is captured in a photograph by Participant 1 (see Figure 27), taken in a local park. The participant's photo caption reads: "A woman was found here dead. You can see used memorial for drug use as well; drug is a problem in Peterborough/Nogojiwanong now." This image encapsulates the challenges residents face to connect to place, juxtaposing the natural beauty of the park with the harsh realities of substance abuse and violence that many feel hinder their connection to their community.

Figure 25: Meth Pipes Found on Public Sidewalk photographed by Participant 17

Figure 26: "Desperation on Bethune"-Participant 16

Figure 27: "A woman was found here dead. You can see used memorial for drug use as well drug is a problem in Ptbo now"- Participant 1

Figure 28: "Rail bridge swimming (near Naval club) someone died here" - Participant 2

The participants' observations regarding nature's healing potential resonate with the general theory of environmental justice, in which degradation of the environment is linked with poor outcomes in physical, emotional and mental health (Schlosberg, 2007). Conversely, accessible and inclusive green space promote mental wellness (Barton & Rogerson, 2017).

Participant 17 characterized nature as a haven, a location providing healing for one's soul and a source of comfort for one's feelings. Participant 10 referenced a nexus between water, land, and nature and stressed the sacred role played by these entities. Participants' strong affiliation with nature, as seen in such statements, aligns with Indigenous philosophies that promote interrelatedness between humans and nature.

Indigenous approaches to environmental justice, with its emphasis on emotion, spirituality, and culture, holds that such entities have a significant role for marginalized groups, such as Indigenous groups (Colomeda & Wenzel, 2000; Maclean & Woodward, 2013; McGregor, 2018). Such a spiritual affiliation with nature accentuates healing in public spaces when designed and planned in a manner that acknowledges such affiliations (see Figure 29).

Figure 29: Handwritten Sign on Park tree Encouraging Visitors to Care for the Park and Keep It Beautiful photographed by Participant 13
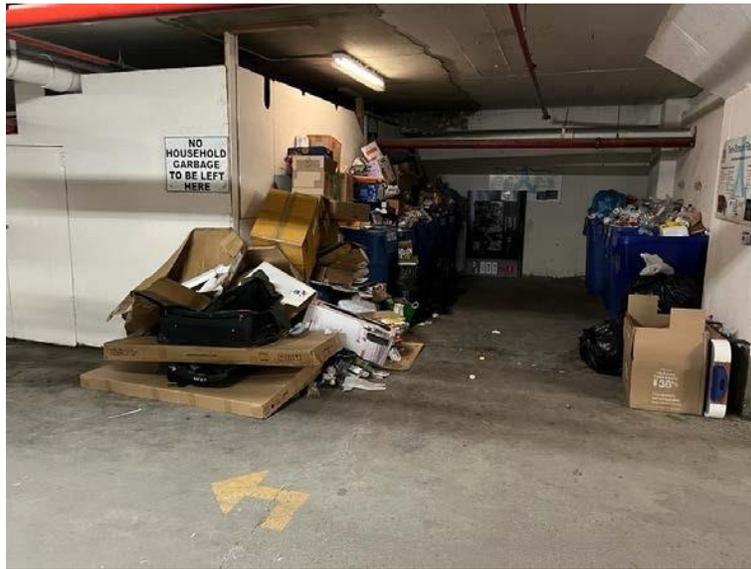
Exclusion

The theme of exclusion was notable across both February and May photovoice sessions with a powerful message regarding marginalized groups' inability to meaningful contribute decision-making processes that affect them and their environments. In these sessions, participants described a lack of access to public goods, services, and safe spaces, such as poor disposal of trash, lack of public toilets, and access to critical public goods (see Figure 30). For instance, Participant 17 captures this issue poignantly through the juxtaposition of two photographs: one depicting evidence of public defecation due to the absence of accessible public restrooms, and the other showing signage that prohibits

access to existing facilities. These images reflect the lived realities of unhoused individuals and align with broader environmental justice literature, which emphasizes how procedural injustices—such as exclusion from decision-making and inadequate access to basic infrastructure disproportionately impact vulnerable communities.

In Peterborough/Nogojiwanong, similar to most Canadian cities, environment- related harms and benefits aren't equally experienced, and marginalized groups have to suffer with poorly maintained public spaces and a lack of critical goods and services (see Figure 31). Inequality in housing exacerbates such inequity, with Participant 14 describing lack of access to greenspaces and housing for living at an affordable price creates additional barriers to accessing proper public spaces, most particularly for vulnerable groups.
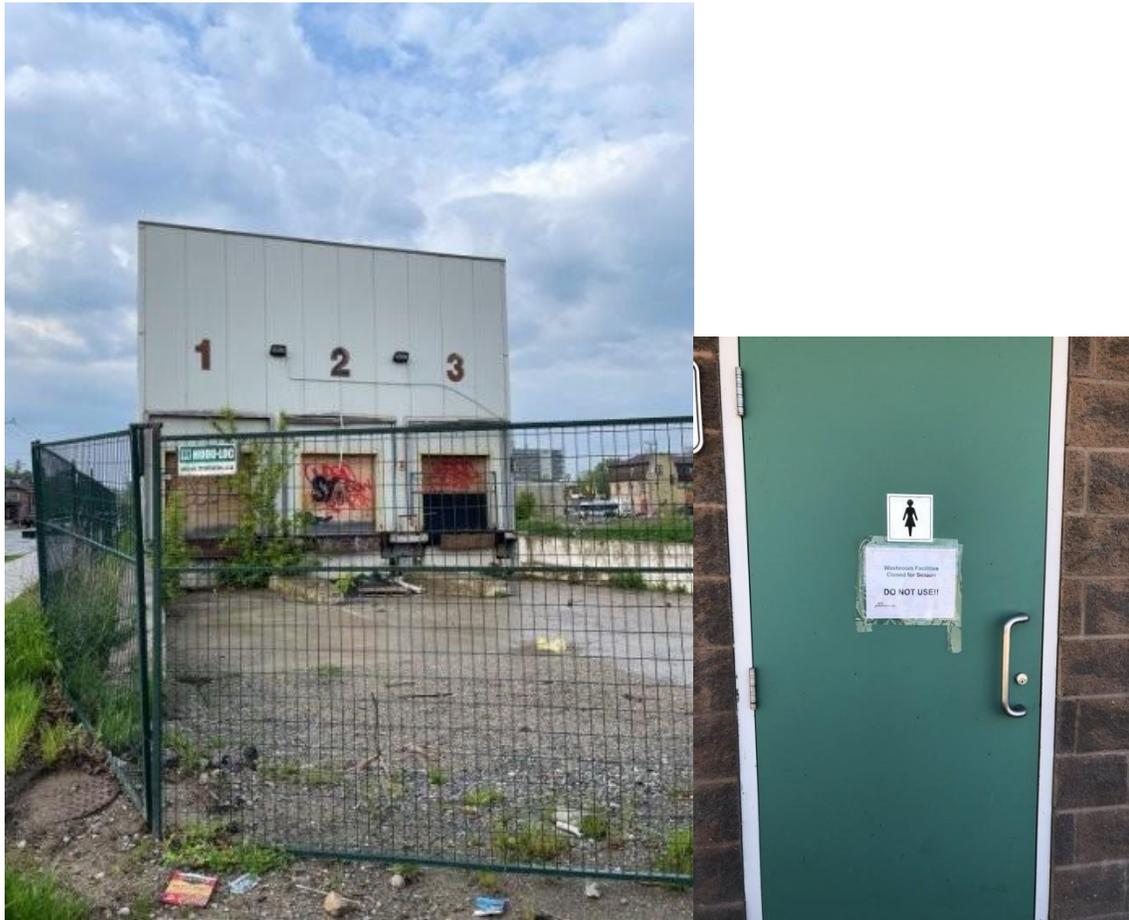
Figure 30: "Defecation in public Bethune Street"- Participant 17

Figure 31: Overflowing and Disorganized Waste at Housing Complex -Participant 1 The participants also emphasized mental well-being and mental health

implications of exclusion in public spaces. Participant 4, in the session in May, shared how

public spaces, for instance, the London Street footbridge, positively impact mental well-

being, offering contact with nature and a sense of peace. In contrast, spaces with a

connotation of neglect and exclusion have the consequence of generating feelings of

frustration, disconnection, and marginalization, such as in Participant 22, who shared how

poorly designed public spaces generate mental misery, specifically for older adults and

persons with mobility challenges. Such observations align with environmental justice

studies, specifically in relation to environment-related ills disproportionately affecting

marginalized communities' mental well-being (Schlosberg, 2007).

Exclusionary design approaches also manifest in a form of spatial injustice. As

discussed earlier in relation to hostile architecture, the physical form of public spaces in

Peterborough/Nogojiwanong betrays an unstated exclusion of certain behaviours or

groups. This theme is present in Participant 14's discussion about benches with metal bars installed to discourage unhoused people from sleeping in such spaces (see Figure 32). Not only do such spaces exclude people in public spaces; they sustain systemic inequalities that make it difficult for marginalized persons to seek comfort or security in public spaces. This mirrors the principle of procedural justice, which promotes participatory and inclusive decision-making in public spaces' governance and design (IPCC, 2022).

Figure 32: "Exclusion: shade, wind, protection, light, seating. Homeless people keep out"- Participant 14

Also, the theme of exclusion is inescapably intertwined with that of colonialism and its long-lasting impact on urban development. Participants 2, 6, 10, and 17 addressed the long-standing exclusions rooted in ideologies of private property that are a direct result of settler colonialism that excludes Indigenous and marginalized groups from access and decision-making (Coates, 1999; Macklem, 2001). Environmental racism, in terms of marginalized groups being disproportionately locked out of environmental decision-making, continues through such systemic obstacles, with further environmental degradation following.

Sanctuary

There was a recurring theme that public spaces, and in fact, spaces with dereliction and disrepair, have the potential to become sanctuaries for individuals and communities. Participant 8 focused on this issue repeatedly. She mentioned community gardens and public spaces, citing contact with nature and with one another in shared spaces as having therapeutic value.

Participant 14 mentioned street art and community connectivity, seeing such spaces as an opportunity to build a shared purpose and a feeling of belonging. The theme of sanctuary is in complete harmony with both participatory action research (PAR) values and values of restorative justice, both whose values entail communities actively working towards taking and re-shaping spaces (Schlosberg, 2007; Wang & Burris, 1994). In terms of environment-related justice, creating sanctuary addresses distributive justice in terms of the fair distribution of both environmental goods and ills. Public spaces, when taken over and rehabilitated through community hands, can serve both for healing and for the

environment and for environment- related justice. Participant 14's testimony about street art

touches on street art having a role in transforming spaces in public spaces a site for

expression, for identity, and for shared memories.
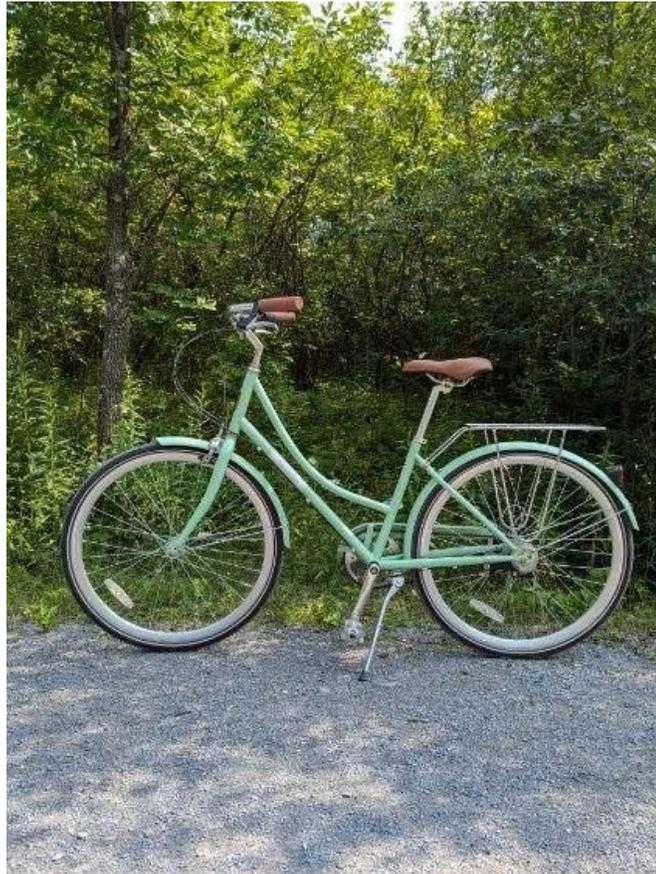
Figure 33: "Bicycles=Dignity, Autonomy/Choice & Accessibility. Also fun & play! Most eco- friendly transport=bikes & trains. I wish anyone who wants one could have the bike they want."- Participant 10

Figure 34: Kayaking in River photographed by Participant 2

The Housing and Homelessness Crisis

The housing and homelessness theme is closely intertwined with concerns regarding environmental justice, particularly with regard to the exclusion and marginalization of vulnerable groups. In all photovoice sessions, intersectionality between housing instability, homelessness, and environmental degradation was stressed. For example, Participant 14 noted that unhoused individuals' lack of space for individual items and have no access to safe space. Participant 15 connected the housing crisis with a lack of greenspace and safe outdoors spaces. Marginalized groups suffer disproportionately in housing, and housing crises exacerbate concerns regarding environmental injustice. This theme is linked with distributive

justice concerning the fair and equitable distribution of goods and services, including

housing, and reveals systemic inequity that leaves certain communities vulnerable to

environmental degradation (Waldron, 2018; Bullard, 1996). In relation to environmental

justice, housing crises emanate out of urban planning and policies with biases that promote

exclusion and inequality. Participant 14's statement regarding a lack of greenspaces reveals

even more regarding housing instability and its intersection with environmental

abandonment.

Marginalized groups, including unhoused persons, suffer most regarding housing and

have less access to safe, well-maintained public spaces. Marginalized groups suffer

disproportionately regarding environment-related hardships, including lack of access to safe

and healthy environments, poor environment and poor sanitation, integral aspects of housing,

and homelessness crises (Waldron, 2018). Participant 22 addressed the larger problem of

gentrification and its impact on affordable housing, portraying urban redevelopment as

driving out vulnerable groups and contributing to housing uncertainty in a larger form. This

observation aligns with larger work on environmental racism, in which urban development's

negative impact on marginalized groups, such as Indigenous groups and racialized groups,

has been documented (Gosine & Teelucksingh, 2008). Gentrification in

Peterborough/Nogojiwanong and in most urban centers displaces racialized and poor people.

Participant 10's observation about a lack of accountability in resolving housing issues reflects

governance failures in resolving such critical issues at a systemic level.

Participants emphasized a lack of proper housing for the unhoused, such as inhumane

living environments for persons in shelters with no room for private spaces and restrictions

placed on individual items. Participant 8 stated that such spaces in shelters

have not been planned with homeless people's needs in mind. Participant 14's observation of hostile architecture, in which spaces have been planned with an intention to prevented unhoused people from using public space, demonstrates a lack of procedural justice in that their voices are not included in planning decisions (Aragão et al., 2016).

The housing crisis is a direct reflection of environmental injustice, disproportionately affecting marginalized communities and exacerbating social and environmental inequity experienced by such communities. Poor housing is not simply an issue of a housing shortage but a marker for broader social, political, and economic frameworks that exclude marginalized groups from access to secure and safe housing spaces.

Mental Health and Wellbeing in Neglected Environments

This theme emerged as a significant concern in the photovoice sessions, reflecting how poorly maintained public spaces, environmental degradation, and exclusion from vital resources affect the mental health and well-being of marginalized individuals and communities.

Participants gave examples of how poor maintenance of public spaces can cause frustration, tension, and anxiety, specifically for groups including older adults, unhoused, and disabled persons with impairments in mobility. Such experiences resonate with studies on environmental degradation and mental well-being in that such environmental degradation is accompanied by poor mental well-being, specifically in marginalized communities (Schlosberg, 2007).

Environmental well-being and mental well-being constitute significant dimensions of environmental justice in that access to healthy, safe, and well-maintained environments is closely accompanied by mental well-being and well-being. Environmental degradation in urban public spaces tends to amplify tension and anxiety, specifically in marginalized groups with social and economic hardships in addition to environmental degradation. Participant 4, 10 and 17 expressed feelings of frustration when one encounters poorly maintained spaces, specifically for disabled people. The inability to access spaces, a sanitary public restroom, or even proper garbage collection service creates a feeling of disconnection and mental anguish. Such observations resonate with distributive justice theory in that access to healthy environments and access to significant resources must fairly be shared between all communities, specifically with social and economic hardships (Bullard, 1996).

Figure 35: "No green bins for downtown residents including restaurants"
- Participant 17

Peterborough/Nogojiwanong housing and homelessness issue was a prevailing and emotional agenda item in the May photovoice session. The increase in housing insecurity, displacement, and urban poverty in Peterborough/Nogojiwanong were addressed, as was their disproportionate burden on low-income, racialized, and Indigenous residents. The issue is in keeping with distributive environmental justice, where attention is brought to bear on the uneven distribution of environmental benefits (housing, parks and green space, and public infrastructure) and environmental costs (homelessness, pollution, and blight in the city) (Waldron, 2018).

Participant 14 offered a poignant rendering of the conditions homeless people face, where the requirement for secure and adequate shelter has forced them into vulnerable conditions (see Figure 36). The loss of personal space, access to sanitation, and secure shelter multiplies physical and mental health risks and creates a vicious cycle of environmental and social exclusion. The photograph "Defiant Spirit," taken by Participant 22, graphically portrays the truth in a picture, where a street encampment is fenced in with barriers and "No Trespassing" signs, symbolizing the unhoused person who is locked out even of the space in the street.

Figure 36: Displacement in Motion: A Life on the Margins Outside Downtown Peterborough photographed by Participant 22

Participant 15 emphasized the structural failures informing the housing crisis and

believed gentrification and predatory policies made affordable housing almost inaccessible

to marginalized groups. This is in keeping with critical urban studies literature, where the

financialization of housing is decried and how it results in the displacement of vulnerable

groups in favour of better-resourced residents (Pulido, 1996). The lack of affordable and

sustainable housing not only contributes to growing social inequities, but also results in

ongoing environmental inequities, with displaced residents experiencing ecological

vulnerability in as a result of living rough. The criminalization of homelessness was a

significant concern among participants. Prohibitive municipal policies against tenting in

parks, draconian zoning laws, and introduction of hostile architecture were presented as

exclusion tools that worked to further isolate the unhoused. Participant 8 discussed ongoing

encampment policing and how, in her opinion, instead of treating the cause of homelessness,

the reaction of the city has been to push the unhoused even further into precarity. This is in keeping with broader criticisms in environmental justice literature, where space and law enforcement are utilized are highlighted in order to perpetuate environmental and social inequities (Bullard, 1996).

Lack of Accountability in Governance

A recurring theme in the in May, August and October sessions was a lack of accountability in governance, specifically in environmental management, the maintenance of public space, and decision-making with disproportionate effects on marginalized groups. Individuals expressed profound frustration with municipal authorities, highlighting how underinvestment in infrastructure, lack of waste management, and exclusionary practices in planning were not negligent mishaps but manifestations of systemic injustices that empower dominant groups and disempowering people with the most exposure to environmental degradation. Participant 6 was especially critical of a lack of consultation in public space design, contending that decision- making on policies affecting marginalized groups was made without them, reaffirming their disempowerment in the urban space. This indicates procedural environmental justice in which decision-making arrangements systematically disempower certain groups to participate in environmental decision-making (Schlosberg, 2007). The photograph "Whose Voice is Heard?" visually represents such a concern, where groups with the most exposure to environmental degradation are systematically silenced in decision-making in policies (see Figure 37).

Figure 37: Whose voices are heard? Town Hall Public Meeting photographed by Participant 4

Another significant grievance was municipal neglect in curbing trash and pollution in low-income areas. Participant 19 pointed out how trash was collected at a slower pace and with a lower frequency in some areas, with increased health risks, environmental harm, and a lower quality of life. It is in accordance with research on distributive environmental justice, where municipal provision such as trash removal and sanitation is distributed to benefit better-off areas while ignoring economically marginalized groups (Bullard, 1996).

Participants also pointed out how municipal officials failed to tackle existing environmental threats. For instance, contaminated land near train tracks and contaminated bodies of water near tent encampments were repeatedly pointed out as areas of concern that the government had ignored. Participant 14 felt such inaction was not an issue of incompetence but a reflection of whose health and safety are prioritized in the city. The scholarship on environmental racism raises a similar criticism and points to how governments ignore environmental hazards in marginalized communities and perpetuate socio-environmental stratification (Waldron, 2018). Beyond neglect, several participants expressed concern over policies instituted by the government that directly targeted marginalized populations. Participant 22 mentioned the criminalization of homelessness in public spaces and how municipal laws like tent bans in parks and anti-loitering policies were instituted without consultation with affected groups (see Figure 39 and 39). It is a type of space governance where exclusion and command are valued over social justice and human dignity (Pulido, 1996).

Figure 38: Unhoused Encampment on Bridge in Public Park photographed by Participant 14

Figure 39: Vacant Tent and Belongings in the Woods Behind Armour Hall photographed by Participant 12

A critical issue in the August photovoice session was personal autonomy and well-being and how individuals are experiencing and moving about in shared spaces. Individuals discussed how access and involvement in shared and natural spaces are a source of psychological resilience, emotional balance, and a sense of agency. They discussed systemic barriers to autonomy, such as municipal policies closing down access in shared spaces, exclusionary design decision-making, and over-criminalization in shared spaces among marginalized groups.

Participant 8 spoke about the healing potential of gardening and neighborhood- driven environmental efforts, citing how working with plant life, dirt, and shared green space is a source of health and happiness in the person and the neighborhood. The process of developing land in the city for food and aesthetic value was spoken about in terms of power, with the power to transform the local space in Peterborough/Nogojiwanong where

shared spaces are inclusionary. The picture "Community Spaces" taken by Participant 8 is a testament to a shared gardening effort that provides food and connects with community through the use of food forests (see Figure 41). Food forests, also known as forest gardens, are intentionally designed ecosystems that mimic the structure and function of natural forests while being primarily composed of edible plants, medicinal herbs, and other useful species (Jacke & Toensmeier, 2005).

Similarly, Participant 10 spoke about solitude in green spaces as crucial to attaining happiness. They spoke about how a stroll in Peterborough/Nogojiwanong's forest trails, riversides, and green spaces is a moment of clarification and emotional rejuvenation, particularly among economically and socially vulnerable groups. The finding is in accordance with research in environmental psychology, where access to the outdoors is proven to have direct and positive implications on mental health, cognitive ability, and stress reduction (Schlosberg, 2007).

Figure 40: "Finding community creativity on the Trans Canada Trail"-Participant 10

Figure 41: Food Forest photographed by Participant 8

Knowledge Mobilization

The dissemination of this study is a crucial aspect of community-based research, reflecting not only my values as a researcher but also the strong connections I developed with participants over the year-long project. The work culminated in the organization of an art exhibit at Artspace Gallery, showcasing participants' photos to both them and the broader Peterborough/ Nogojiwanong community. Artspace, a nonprofit artist-run center, has been dedicated for over 50 years to fostering creativity, collaboration, and inclusivity in the Peterborough/Nogojiwanong region. In addition to the exhibit, our knowledge mobilization efforts will extend to policy briefs aimed at local and provincial politicians, alongside op-ed article submitted to *The Peterborough Examiner* to raise awareness of environmental injustice in the region. Finally, once the final version of my thesis is approved by my committee, I will provide participants with full access to the completed work. As an outsider to Peterborough/Nogojiwanong, I felt a strong responsibility to implement multiple knowledge mobilization efforts after actively listening to the needs of long-time residents, and building meaningful relationships grounded in trust and respect. The opportunity to engage with the community in this way has been an invaluable privilege, one I will carry with me long after this thesis is complete.

Photo by Alex Karn © Peterborough Currents 2024

Chapter 5: Conclusions

This qualitative study explored community agencies' definitions of environmental health and community participation and, more broadly, their understandings of environmental action and environmentalism. As Haluza-Delay et al. (2009), Gosine & Teelucksingh (2008) and others have pointed out, while environmental justice-related research is an emerging area of scholarship in Canada, this does not mean that concerns over environmental justice and instances of injustice or inequalities do not exist here. This project contributes to the growing body of Canadian scholarship seeking to expose problems of environmental justice in the Canadian context.

A consistent theme in the environmental justice literature over the last decade has been that questions of procedural justice have not been fully explored (see Holifield, 2001; Szasz & Meuser, 1997); this pattern has also been highlighted in the field of environmental justice in Canada (Masuda, 2008). The literature has also identified the associated need for more qualitative empirical enquiry using an environmental justice lens. This thesis project responds to these gaps in the literature.

Key Findings

This research demonstrates that photovoice is an effective method for enabling community members to share their lived experiences of environmental injustice while also fostering solidarities among participants. Through the process of documenting and discussing their realities, participants not only voiced individual concerns but also

recognized shared struggles, reinforcing a collective understanding of environmental and social marginalization.

This participatory approach provided a space for dialogue, advocacy, and mutual support, underscoring the potential of photovoice as both a research method and a tool for community empowerment.

A central finding of this study is the significant lack of distributive, procedural, and restorative justice experienced by participants. Many reported unequal exposure to environmental harms, limited access to decision-making processes, and an absence of meaningful efforts to remediate past and ongoing injustices. These disparities were not only structural but also deeply personal, shaping participants' relationships with their environment and their sense of agency in addressing these issues. Their experiences highlight the systemic nature of environmental injustice, which persists despite existing policies intended to promote equity.

Importantly, the challenges faced by participants were further amplified by their intersectional identities. Factors such as race, class, gender, and Indigeneity influenced their experiences of environmental injustice, revealing the ways in which multiple forms of marginalization compound vulnerability. Participants articulated how their social positions affected their ability to resist environmental harm, access resources, and engage with institutional decision-making processes. This finding underscores the necessity of an intersectional approach to environmental justice that acknowledges how overlapping systems of oppression shape lived realities.

Another key insight from this research is that participants possessed a highly nuanced understanding of the relationship between social and environmental

marginalization. Rather than viewing environmental injustice as merely the experience of contamination or exposure to point-source pollution, they articulated it as part of a broader socio-environmental system. Their perspectives demonstrated an awareness of how economic disinvestment, housing insecurity, racial discrimination, and environmental degradation are interconnected, reinforcing the need for holistic, systemic approaches to environmental justice.

Ultimately, these findings highlight the importance of engaging directly with affected communities to understand their lived experiences rather than making assumptions about how they experience environmental injustice. Participants' insights challenge conventional top-down approaches that often fail to capture the complexities of environmental and social inequities. This research affirms that community voices must be at the center of environmental justice efforts, ensuring that policies and interventions are informed by those who are most impacted.

Recommendations Based on Participant Themes

The participants in this research highlighted the need for city officials to consider their specific experiences of social and environmental inequality. They wanted the opportunity to shape policies as well as steer urban planning efforts and strengthen community-led initiatives for creating an equitable, sustainable urban domain. Local policymakers must prioritize remodeling their administrative frameworks as well as urban planning initiatives to take vulnerable community members into account. Urban policy centers should target high-density areas where poor and minority residents live so

they can eliminate dangerous, polluting activities such as industrial contamination and

inadequate waste disposal. A reassessment of public space design alone will help create

spaces that welcome all individuals because eliminating unfriendly elements such as

restricted benches promote universal accessibility and inclusivity for vulnerable groups who

need accessible spaces the most. Community-driven initiatives are vital to overcoming

environmental harm in ways that both have long-term benefits and sustainable outcomes. The

participants in this research noted that more waste bins, gardens, and environmental

education together with public space revitalization need expansion. Organizations alongside

the City of Peterborough could allocate funding toward such community-led endeavours and

any funding should focus specifically on these communities' requirements.

Participants, again and again, emphasized the need for collaborative governance and

procedural justice. This research has shed light on the ways in which environmental

injustices are experienced differently across small city locations, particularly by racialized,

low-income, disabled, and otherwise marginalized communities in Peterborough/

Nogojiwanong. Through a participant-driven photovoice process, it became evident that the

lived experiences and insights of those most affected by environmental harms are often

overlooked in conventional planning and policy frameworks. Yet, these

perspectives are vital to shaping more just and inclusive urban environments. As such, urban

planning and environmental decision-making processes in Peterborough/Nogojiwanong

should enable the participation of marginalized communities, particularly those of racialized,

low-income, and disabled groups. Ensuring that these voices are not only heard but

meaningfully incorporated into environmental governance is a necessary step toward

dismantling structural inequities and fostering collective resilience. Municipal leaders should

work with community members and local organizations in this city to establish

environmental policies that address experiences of residents who suffer from environmental

injustice.

As this project comes to a close, I am left with a deep sense of gratitude for the

wisdom, strength, and vulnerability that participants shared throughout our time together.

Their insights challenged me to rethink my assumptions and approach research not as an

outsider looking in, but as someone deeply accountable to the communities whose stories I

am helping to tell. Their reflections on exclusion, resilience, and the power of collective care

illuminated new dimensions of environmental injustice that I had not fully appreciated. This

project has profoundly shaped me—not only as a researcher committed to justice-based

inquiry, but as a person more attuned to the complexities of community experience and the

urgent need for systems change. The participants' stories remain with me, not just as data, but

as reminders of what is at stake and what is possible when research is done in solidarity with

those at the margins.

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Appendices

Appendix A: Information and Consent Form – Participatory GIS and Photovoice

Study name

Mapping for Change: Environmental Inequality and Resilience in

Nogojiwanong/Peterborough/Nogojiwanong County

Research Team

Stephanie Rutherford, Principal Researcher (PI) – srutherford@trentu.ca Michael

Classens, Co-Investigator (CI) – michael.classens@utoronto.ca

Czarina Garcia, Community and Race Relations Committee of

Peterborough/Nogojiwanong (CRRC) –

admin@racerelationsPeterborough/Nogojiwanong.org

Samantha Rockbrune, Kawartha World Issues Centre (KWIC) –

sam.rockbrune@kwic.info

Purpose of the research

This research aims to understand your experience of environmental goods and bads in

your community. We are curious about how people experience and understand

environmental harm in their neighbourhood. We also want to know how individuals,

organizations, and communities organize to change inequities around the environment.

What you will be asked to do in the research

As part of the Participatory Geographical Information System (GIS) and photovoice workshop series, you will first be asked to participate in one half-day orientation on the use of GIS and photovoice. There will be 25-30 people participating in these workshops together.

After the orientation session we will ask you to take pictures and pinpoint spots on a map of environmental goods (things in your community the promote health and wellbeing) and bads (toxic sites, sources of air pollution, lack of access to nature etc.) In addition to the orientation session, we will come together for four two-hour workshops throughout the year (one in each season). The purpose of these four workshops will be to share and discuss what you have documented with other workshop attendees and the Research Team. You will be asked share your images, experiences, reflections, and anything related to the project. We ask that you only share whatever you are comfortable sharing.

These workshops will be video recorded, but these recordings will not be shared outside the research team; they are for the purpose of accurately reflecting the information that is shared. However, this means that we will not be able to maintain strict confidentiality around what you contribute as part of the sharing circle. You may choose instead to communicate your responses directly to the research team instead of part of the sharing circle. A private sharing meeting with members of the Research Team can be arranged either in-person or virtually. If you would prefer to share in private, please indicate that below.

If you participate in the group workshops, your identity will be known to other participants and the researcher cannot guarantee that others in this group will respect the confidentiality of the group. The research team asks that you sign below to indicate that you will keep all comments made during the focus group confidential and not discuss what happened during the focus group outside the meeting.

Honorarium

You will receive an honorarium of $25.00 per hour for your participation in the orientation session and in each of the workshops (whether you join the group workshops or privately with the Research Team).

Voluntary participation and withdrawal from the study

Your participation in the study is completely voluntary. You may choose to stop participating at any time, for any reason. You may also choose not to answer any of the questions posed in any part of this study without withdrawing from the study completely. You can withdraw the photos or GIS datapoints you've shared up to 30 days after the last workshop you attended. If you withdraw at any time, all of your responses will be destroyed and not included in the study.

Your decision to stop participating, or to choose not to engage in particular activities, will not affect your relationship with the researchers, Trent University, or any other group associated with this project.

Risks and discomforts

There is the possibility for social and psychological risks associated with this research.

Documenting and speaking about environmental harm in your neighbourhood or that

you personally experienced may be stressful or emotionally triggering for you. You may

also experience social stigma in sharing your comments to the larger group.

You are free to share as little or as much information as you wish in the workshops, or as

many of the photos as you are comfortable with.

Benefits of the research and benefits to you

It is hoped that the research results in better understandings of environmental harm in our

community and how people are organizing to improve the environments in which they

live, work, and play. It is also hoped that the findings will provoke policy and program

change at the municipal level in support of a more environmentally equitable

city/county. You may experience no direct benefit as a result of your participation in this

study. However, you may value being asked to share your expertise and contributing to

the project, as well as the connections you will make with other community members.

How the data will be used

The GIS datapoints that you identify will be included on a map displaying environmental

goods and bads that will be freely available to you and the broader community. All

personal identifying information will be removed. The photographs you produce will be

curated into collections and posted on the project website (www.mapping4change.org),

with your permission. All identifying information will be

removed. *We ask that you do not include other people in your photographs.*

In addition to appearing on the website, the information and images you share may be included in a summary report, conference and public presentations, and articles in the academic and public presses. Your information will remain confidential, and you will not be named or identified in any presentations or publications about the research, unless you indicate that you wish to have your name associated with the pictures.

Storage and protection of data

The data will be stored on the Trent's secure OneDrive server that is encrypted, and password protected for all team members to access for 5 years, at which point the data will be destroyed.

Confidentiality

Your name will not be attached to any presentations or publications about this project. We will assign you a number to be used in any notes and transcripts. Any information that could identify you as a participant will be kept confidential to the fullest extent the law allows.

Questions about the research?

If you have any questions about this research, or the ethics review process, you may contact:

Stephanie Rutherford, Principal Investigator at srutherford@trentu.ca or 705-748-1011 x7187.

This study has been reviewed and approved by the Trent University Research Ethics Board. Please direct questions pertaining to this review to Jamie Muckle,

Certifications and Regulatory Compliance Officer, Trent University, Phone: 705-748-

1011 ext. 7896, Email: jmuckle@trentu.ca

Legal rights and signatures

   I _____ consent to participate in the "Mapping for

Change: Environmental Inequality and Resilience in

Nogojiwanong/Peterborough/Nogojiwanong County" research project. I understand the

nature of this project and my involvement in it and I wish to participate. I am not waiving

any of my legal rights by signing this form. My signature below indicates my consent.

I agree that I will keep confidential any of the identities of fellow workshop participants

(see also confidentiality agreement). I also agree that I will not disclose conversations had

as part of the sharing workshops.

I consent to the following uses of my photographs, descriptions, and pinpoint data:

[ ] That my GIS pinpoints be included in a map accessible to the public.

[ ] My name to be attached to any photographs I submit to this project (for the website

and in any publications.)

OR

[ ] My name SHOULD NOT be attached to any photographs I submit to this project (for the website and in any publications.)

Signature_____Date_ (Participant)

Signature_____Date (Researcher)

Additional consent

[ ] I consent to being part of a video recording of the workshops. The recording will not be shared with anyone other than me and the research team without your prior written consent. Audio and video recordings will be kept on the on Trent's secure OneDrive server that is encrypted, and password protected for all team members to access for 5 years, at which point the data will be destroyed.

    [ ] I do not consent to being recorded

Signature_____Date__(Participant)

If you would like to be notified of the study results, please check here [ ]

If you would be interested in participating in an interview, please check here [ ]

I would prefer to meet with the Research Team privately to share my pictures and insights

[ ]

Appendix B: Confidentiality Agreement for Sharing Workshops

Study name

Mapping for Change: Environmental Inequality and Resilience in

Nogojiwanong/Peterborough/Nogojiwanong

County

Research Team

Stephanie Rutherford, Principal Researcher (PI) – srutherford@trentu.ca Michael

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Czarina Garcia, Community and Race Relations Committee of Peterborough/Nogojiwanong

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Samantha Rockbrune, Kawartha World Issues Centre (KWIC) –

sam.rockbrune@kwic.info

Photovoice is a research method that asks community members to take photos of the places that

they live. For this project, we are hoping you will take photos of environmental goods and bads

in your community and describe them as part of four sharing workshops.

Some of the perspectives and details that are contributed by participants in these workshops

may be sensitive or difficult to share. The researchers ask that you maintain

the privacy of your fellow research participants and not repeat what is said in these workshops

to others.

Please indicate your agreement to keep these conversations confidential by checking the box

below.

[ ] I agree to maintain the confidentiality of the information shared by the participants and

researchers in these workshops.

Name _____

Date _____

Appendix C: Photovoice Release Form

Study name

Mapping for Change: Environmental Inequality and Resilience in

Nogojiwanong/Peterborough/Nogojiwanong

County

Research Team

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Samantha Rockbrune, Kawartha World Issues Centre (KWIC) – sam.rockbrune@kwic.info

Photovoice is a research method that asks community members to take photos of the places that

they live. For this project, we are hoping you will take photos of environmental goods and bads

in your community and describe them as part of four sharing workshops.

I grant to the research team for the Mapping for Change Project, overseen by Stephanie

Rutherford (Principal Investigator), the right to use photographs/images I provide about my

community and the everyday environment I experience. I authorize

Stephanie Rutherford and the research team for this project to use and publish these images in print and/or electronically. I have read and understood the above.

I agree that I will not include images of any other people in my images, as they have not provided their consent to be part of this research project.

Name _____ Date

_____

Appendix D: Recruitment Poster