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Preparing students and early-career researchers for ethical decision-making in community-engaged research in the Arctic

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ABSTRACT

As community-engaged and community-driven research grows in the Arctic, research collaborations increasingly encounter ethical dilemmas that extend beyond procedural ethics guidelines, which require nuanced and culturally-sensitive navigation. Early-career researchers and students play a critical role in community research collaborations in the Arctic, but often do not receive structured guidance on ethical decision-making in cross-cultural settings. In this manuscript we draw from our diverse experiences in community-engaged research to examine underpinnings of common ethical dilemmas, including managing power imbalances across research teams and community partnerships; encountering and addressing harassment and discrimination; attending to mental health and safety during research activities; and navigating resource (in)equity. We highlight the need for intentional trust-building, reflexivity exercises, and team-based exploration of principles to address ethical dilemmas in community-engaged research settings. Additionally, we provide examples of dilemmas and questions to guide ethics discussions for Arctic research teams, including students and early-career researchers. Establishing clear team guidelines for ethical decision-making and equipping team members with the skills to navigate ethical challenges can foster more equitable research collaborations with Arctic communities, and lay the foundation for co-generating ethical standards with community partners.

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Introduction

Over the past 30 years, the Arctic has received increased global attention and research activity as the region faces mounting challenges from biophysical effects of climate

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change, and economic opportunities pursued by both Arctic and non-Arctic nations.[1] Historically and continuing today, expanding research activity in the Arctic has lead to 'parachute' or 'helicopter' research, where researchers travel to lands historically and often still occupied by Indigenous peoples, leverage local labour, extract data, and leave without sharing results or benefits with the communities closest to the study site.[2] In response to the unethical, inequitable, and exclusionary conditions created by such practices, Indigenous groups throughout the Arctic have called for early and direct communication of research activities with local communities, involvement of Indigenous communities through the entire research process, and deference to the leadership of local groups.[3]

Fundamental goals associated with increasing Indigenous representation in Arctic research are to advance knowledge sovereignty, promote the Indigenisation of research, and foster collaborative relations between Indigenous communities and research(ers).[4] Guidelines and protocols for ethical and equitable engagement with Indigenous communities of the Arctic have been developed by national, Tribal, and international governing bodies, including the Inuit Circumpolar Council (ICC).[5] These frameworks consistently emphasise the importance of creating pathways to Indigenous-led research and enhancing community involvement in Arctic research across all disciplines.[6]

Indigenous communities of the Arctic have long histories of engagement with outside researchers, but the growing emphasis on and funding for community-engaged research in the region has increased opportunities for collaborative, direct interaction. As interactions increase, so do opportunities for tensions and ethical dilemmas that researchers and community members must collaboratively navigate. These can arise from divergent sociocultural norms, systemic inequities between researchers and communities, and biases that range from subtle to overt, including racism.[7] Ideally, outside researchers arrive at these partnerships with an understanding of ethical engagement guidelines, and a deep awareness of the local histories and lived realities of Indigenous peoples. While many fieldwork safety protocols focus on physical risks of conducting fieldwork in remote and harsh polar conditions, there is growing recognition of the importance of fostering socially and emotionally safe environments for all researchers and collaborators.[8] Power imbalances – both between researchers and communities and within research teams – highlight the need for a deeper understanding of how to define, train for, and implement ethical practices and behaviour expectations in research projects occurring with Arctic communities.

[1]Aksnes et al., "Arctic Research Trends"; and Aksnes et al., "Arctic Research Publication Trends."
[2]Doering et al., "Improving the Relationships."
[3]Brunet et al., "The Evolution of Local Participation"; and Inuit Circumpolar Council (ICC), "Circumpolar Protocols for Ethical and Equitable Engagement"; and Doering et al., "Improving the Relationships"; and Kawerak, Inc. et al., "Kawerak-Region Tribal Research Protocols."
[4]Kawerak, Inc. et al., "Kawerak-Region Tribal Research Protocols."
[5]ICC, "Circumpolar Protocols for Ethical and Equitable Engagement"; and Kawerak, Inc. et al., "Kawerak-Region Tribal Research Protocols"; and Naalaakkersuisut "Research – the Road to Progress."
[6]Ibid.
[7]Dance et al., "Coming in from the Cold"; and U.S. National Science Foundation (NSF), 'Review of NSF's U.S. Antarctic Program"; and Moraru et al., "Polar Fieldwork in the 21st Century."
[8]Dance et al., "Coming in from the Cold"; and NSF, "Review of NSF's U.S. Antarctic Program"; and Moraru et al., "Polar Fieldwork in the 21st Century"; and Starkweather et al., "Levelling the Field."

Growth of participatory research and co-production approaches in the Arctic

There has been notable progress in approaches to community-driven and community-engaged research in the Arctic. The use of participatory methodologies such as community-based participatory research (CBPR) and participatory action research (PAR) represents meaningful progress towards research that prioritises community ownership and benefit.[9] Citizen science frameworks and observation networks in the Arctic bridge Indigenous knowledge and Western knowledge systems, promoting local participation, communication, and ongoing evaluation of science tools and processes.[10] Knowledge co-production has emerged as a collaborative, action-oriented approach to research by and with Indigenous communities in the Arctic.[11] Knowledge co-production approaches seek to redistribute political and economic power across communities by leveraging research relationships, often with powerful institutions, to address community-identified questions and generate community-desired products and solutions.[12]

Leadership and advocacy from Indigenous communities and scholars has driven a shift in institutional policies to require community consultation and collaboration in Arctic research. Major funding agencies including the National Science Foundation (NSF), and cooperative networks like the International Arctic Social Sciences Association (IASSA) and the Interagency Arctic Research Policy Committee (IARPC), mandate documented evidence of community notification of research activities, and preferably community involvement in research prior to and throughout activities.[13] Co-production of knowledge is a recognised objective of major Arctic research agendas, including through the International Conference on Arctic Research Planning (ICARP) Research Priority Team 5, and the United States National Research Strategy for the Arctic Region.[14]

Despite progress made towards collaborative processes with communities, Arctic economic, political, and cultural histories contribute to enduring power imbalances between researchers and Indigenous communities, and demand attention to the risks of overlooking historic inequities when co-production becomes the status quo.[15] When participatory methodologies are applied across disciplines that are not historically rooted in critical social theory, they risk replicating these colonial power structures.[16] As an example non-specific to the Arctic, Indigenous community members engaged in research who may have previously served as resource suppliers or informants may be redefined as

[9]Davis et al., "From Participatory Engagement"; Ford et al., "Being Useful"; Lewis and Boyd "Determined by the Community"; Mosurska and Ford, "Unpacking Community Participation"; and Rink, "An Evaluation of the Interaction."
[10]Couzin, "Opening Doors to Native Knowledge"; Dunmall and Reist, "Developing a Citizen Science Framework"; and Pulsifer et al., "Towards an Indigenist Data Management."
[11]Brunet et al., "The Evolution of Local Participation'; Davis et al., "From Participatory Engagement"; and Ellam Yua et al., "A Framework for Co-Production."
[12]Ellam Yua et al., "A Framework for Co-Production."
[13]International Arctic Social Sciences Association (IASSA), "IASSA Principles and Guidelines"; "Inter-agency Arctic Research Policy Committee (IARPC), "SHARE Principles"; NSF, "Community Engagement and Knowledge Coproduction"; Navigating the New Arctic – Community Office (NNA), "Co-Production of Knowledge"; and Arctic Research Consortium of the United States (ARCUS), "Revised Principles for Conducting."
[14]International Conference on Arctic Research Planning (ICARP), "Research Priority Teams"; and ARCUS, "Revised Principles for Conducting."
[15]Leeuw et al., "Participatory and Community-Based Research."
[16]Keahey, "Sustainable Development and Participatory"; Leeuw et al., "Participatory and Community-Based Research"; Long et al., "Questions that Won't Go Away"; Mosurska and Ford "Unpacking Community Participation"; and Nadeau et al., "The Challenges of Decolonising."

'research partners' or 'co-researchers'. While this change in terminology appropriately reflects the valuable contributions of Indigenous community members to research, superficial 'rebranding' can mask persistent power relations of colonial research, and reduce community capacity to fairly criticise or speak up about problematic dynamics.[17] These recharacterizations can serve as intentional performances in which researchers with power present themselves as conscientious of inequity and signal their own 'goodness', while avoiding the more difficult and necessary actions of anti-racist and anti-colonial practice, like challenging the inequitable structures of research institutions from which they often benefit.[18]

Defining and navigating 'ethics' in community-engaged research

For many researchers, traditional ethical considerations in scientific research are rooted in *procedural* ethics, the guidelines including institutional approval processes (Institutional Review Board or ethics committee), informed consent, confidentiality, fair treatment of participants, and adherence to established frameworks like the Belmont Report or the Declaration of Helsinki.[19] Research institutions and funding agencies mandate training on procedural ethics for all researchers engaged in human subjects research. Still, most research ethics training centres around Western researchers and research entities, and emphasises harm reduction and compliance with legal requirements.[20] In the Arctic, contemporary ethical standards- as determined by Indigenous leaders, funding agencies, and professional organisations- additionally encompass respect for Indigenous knowledge and culture, responsible environmental stewardship, accountability, transparent communication, and attention to locally contextualised perceptions of research risks and benefits.[21] The CARE (collective benefit, authority to control, responsibility and ethics) Principles for Indigenous Data Governance as well as the First Nations Principles of OCAP (ownership, control, access, and possession) expand ethical expectations by prioritising Indigenous control over data related to Indigenous People and Indigenous Knowledge.[22]

Researchers are increasingly expected to demonstrate adherence to Indigenous research guidelines and CARE principles, but formal training in these areas is not yet mandated by all science organisations in the Arctic.[23] Despite proactive and preventative guidelines for procedural ethics, community research partners, scientists, and students frequently experience ethical dilemmas, tensions, and conflicts that arise during collaborations, or what can be termed *ethics in practice*.[24] As training in ethics is typically

[17]Leeuw et al., "Participatory and Community-Based Research"; and Ahmed, "Declarations of Whiteness."
[18]Leeuw et al., "Participatory and Community-Based Research"; Ahmed, "Declarations of Whiteness"; and Tuck and Wang, "Decolonisation is not a Metaphor."
[19]Office for Human Research Protections (OHRP), "The Belmont Report"; and Reid et al., "Ethical Dilemmas and Reflexivity."
[20]Anderson et al., "Research Ethics Education."
[21]IASSA, "IASSA Principles and Guidelines"; IARPC, "SHARE Principles"; O'Brien et al., "Ten "Simple" Rules"; ARCUS, "Revised Principles for Conducting"; and Government of Canada, "TCPS 2."
[22]Research Data Alliance, "CARE Principles"; and First Nations Information Governance Centre, "First Nations Principles of OCAP."
[23]Carroll et al., "Using Indigenous Standards"; and Jennings et al., "CARE Principles."
[24]Duquette-Rury, "Navigating Ethical Issues"; and Guillemin and Gillam, "Ethics, Reflexivity."

principle-based and not practice-based, training, if any, for this third set of ethics occurs based on the initiative of researchers themselves, and are not mandatory or standardised.

Ethics are rooted in cultural and geopolitical contexts, making them inherently variable across regions and communities. For Arctic researchers, this variability underscores the need for nuanced understanding of how ethical norms are shaped by cultural values, histories, and community expectations. Even seemingly straightforward elements, such as the use of identifying terminology for land features, groups of people, or objects, can differ significantly between proximate Arctic communities, necessitating education and sensitivity from incoming researchers. In the ethics training models available for IRBs and Ethics Review Boards at the university or national scale, most day-to-day ethical questions that arise while conducting work alongside and within communities are contextual and cannot be generalised for all trainees.[25] Multicultural and multidisciplinary teams of students and early-career researchers engage in research partnering with Arctic communities, and these team members will inevitably have gaps in training and preparedness for navigating ethical dilemmas. While in the field, teams must navigate these dilemmas without exacerbating harm to community research relationships or creating emotionally challenging circumstances for team members. These complexities highlight critical questions for the polar research community: How do we effectively teach ethical behaviour to students and early career-researchers who are working in the Arctic, particularly when ethical norms and expectations vary widely?

Preparing students and early-career researchers for ethical Arctic research

Research teams engaged in Arctic research vary in size and disciplinary backgrounds, but often consist of senior and mid-career researchers serving as mentors, and early-career researchers and students in mentee roles. Early-career researchers and students play an essential role in Arctic fieldwork and research endeavours.[26] For example, in recent years early-career researchers have played a prominent role in making visible the barriers to safely participating in polar fieldwork, especially for women.[27] The increasing representation of minoritised genders and ethnicities within contemporary cohorts has enriched the diversity of perspectives on ethics and ethical conduct. Contemporary early-career researchers bring novel insights into the social paradigms of ethical behaviour, offering opportunities to challenge and expand conventional notions and practice of research ethics. However, this diversity also brings added responsibility to ensure that ethics training addresses issues of equity, inclusion, and the unique challenges faced by minoritised researchers in the field. As polar sciences respond to enduring calls to increase diversity and improve inclusivity in polar research, project leaders and Principal Investigators (PIs) must plan for how they will safely facilitate the integration of minoritised students or early-career researchers – including based on gender identity, socioeconomic status, disability, or race- into polar research environments.[28] Despite improvements in training for community-engaged research best practices, research

[25]Anderson et al., "Research Ethics Education."
[26]Dance et al., "Coming in from the Cold"; Moraru et al., "Polar Fieldwork in the 21st Century"; and Tondu et al., "Working With Northern Communities."
[27]Dance et al., "Coming in from the Cold"; and Moraru et al., "Polar Fieldwork in the 21st Century."
[28]Seag et al., "Intersectionality and International Polar Research."

from the Association for Polar Early Career Scientists (APECS) has found that many early-career researchers report they do not have adequate mentorship, information, or direction over resources to fully support community-collaborative research with Indigenous communities of the Arctic.[29]

These findings highlight potential gaps in how senior researchers have historically developed their individual approaches to *ethics in practice* in community-engaged research.[30] Often, their own understanding of ethical behaviour was shaped organically and adaptively through firsthand experience. While this kind of embeddedness and on-the-ground learning is an essential hallmark of fieldwork, the growing involvement of diverse early-career researchers and students in Arctic communities demands a more structured approach; one that accommodates diverse abilities, promotes safe interactions among all research collaborators, and avoids replicating the circumstances that lead to 'tough lessons' learned by earlier generations of researchers, particularly in relation to cultural humility, safety, and trust. Research norms and standards have changed to demand greater attention to intersectionality, as have dynamics across collaborative teams and in relationships with communities.[31] Establishing and teaching culturally and locally appropriate ethical standards of conduct before new researchers arrive in a community is critical to ensuring respectful and effective engagement. All researchers, including those with more fieldwork experience, benefit from reflexively revisiting and/or proactively reaffirming their principles for ethical research practice. Acknowledging a need for intentional and reflexive ethical practice creates space for co-learning, growth and improvement.

Importantly, academic institutions have a responsibility to develop ethical decision-making guidelines to prepare students and early-career researchers for community-engaged research, rather than placing the emotional and logistical burden on community members to teach incomers about what is 'right'. Ideally, community-engaged research includes the co-creation of ethical standards.[32] Open conversations about safety extend beyond individual research teams to include community partners, recognising that ethical and safety concerns are deeply intertwined. However, asymmetrical power structures often limit the ability for community partners to communicate the culturally appropriate course of action in any given ethical dilemma, especially if there is implicit pressure not to 'step on the toes' of researchers. As one of our team members, an Iñupiaq researcher from a small community in Alaska observed: in cultural environments that prioritise conflict avoidance, it is unrealistic to expect deep engagement in shaping ethical standards unless researchers first take responsibility for doing the emotional and logistical work themselves.

The purpose of this manuscript is to highlight the need for improved processes to prepare early-career researchers and students to navigate the ethical complexities of community-engaged research in the Arctic beyond *procedural* ethics. As community-engaged research in the Arctic grows, how can research teams and communities collaboratively define ethical behaviour during research activities? Given there is no one-size-

[29]Tondu et al., "Working With Northern Communities"; and Sjöberg et al., "Involvement of local Indigenous peoples in Arctic."
[30]Ibid.
[31]Seag et al., "Intersectionality and International Polar Research."
[32]Cadman et al., "Using Positionality"; ICC, "Circumpolar Protocols for Ethical and Equitable Engagement"; O'Brien et al., "Ten 'Simple' Rules"; and Ryan-Davis and Scalice, "Co-Creating Ethical Practices"; and Ellam Yua et al., "A Framework for Co-Production."

fits-all solution, we encourage reflexivity across Arctic research teams to address power imbalances, mitigate harm, and integrate training for ethical decision-making into researcher education. We address critical issues of equity, safety, and accountability that arise in research where community relationships are central and power dynamics are asymmetrical.

Developing team principles for ethical decision-making

Positionality

We are a diverse team of authors from universities in Alaska and Arizona, united by ongoing collaborative and community-engaged research. Our team includes Indigenous and non-Indigenous scholars with roots in Inuit Nunaat, Mexico, the United States, Russia, and Nigeria. We represent a range of career stages, from undergraduate students and graduate students, to early-career, mid-career, and senior researchers. As a transdisciplinary group, our expertise spans Indigenous studies, governance, community health, environmental social science, psychology, human ecology, and the physical sciences.

We approach this work informed by our individual life experiences, shaped by systems of oppression and privilege within racialised and colonial contexts. Collectively, we bring years of experience in fieldwork and confronting ethical dilemmas in multicultural contexts and in community-based research settings. Some members of our team have extensive experience building collaborative, community-academic research partnerships in the Arctic, while others contributed perspectives from work in other global regions. Community members are employed and engage as critical members of the research team on all the Arctic projects we work with. We have had many positive community-engaged research experiences and successes that have led to long-lasting trusted relationships and meaningful outcomes. We have also encountered disruptive challenges in the field, such as harassment based on social identity. These experiences shape the way we make decisions in our work, and our commitment to a justice-oriented, decolonial research approach. While our broader research collaboratives are grounded in co-production frameworks and include community research partners, in this manuscript we specifically engage perspectives from/for academic institutional settings.

Background and lab context

The impetus for this manuscript arose in Fall 2024 from internal discussions about complex, difficult-to-navigate situations that students, postdoctoral scholars, and faculty had encountered during community-engaged work and within research teams. Some of the most challenging dilemmas emerged when students had to navigate decisions about financial equity within community research collaborations. These situations amplified tensions between the substantial resources held by academic institutions, the limited personal resources of individual researchers, and the financial needs expressed by community members.

As we deliberated over the 'right' course of action, it became clear that there was no definitive answer or clarity on who, among our research team, had the authority or expertise to determine the 'right' response in ethical grey areas involving community partnerships. While asking senior leadership to intervene or provide guidance might appear to be the logical approach, deferring to hierarchy is impractical in the time-sensitive and relationship-sensitive contexts that students and early-career researchers encounter during community-based work.

In our community partnership, students often needed to make immediate choices in the field. Deferring ethical decision-making to senior researchers reinforces existing power imbalances rather than resolving them, and is at odds with a collective commitment to mutual respect. The need to respond in-situ without advance discussion or training leaves students and early-career researchers feeling unprepared, and undermines the reciprocity and accountability that are essential to building trust in individuals within community partnerships. As one example, there were several instances during a community research collaboration where students fielded questions or concerns from community research partners about employment contracts or payment schedules. In these circumstances clear communication is crucial, as miscommunication can weaken trust in the greater research collaborative and jeopardise the authority and autonomy of the Tribe to manage research-related employment contracts. As students are not often included in budget-setting and contract negotiation for larger collaborative projects, we recognised the need to improve transparency across the research team about how grant funding for co-produced research is disbursed across funders, academic institutions, and the Arctic communities we work with, and how the local tribal government decides on employment opportunities and pay rates for research positions. This transparency and background knowledge helped all team members to contextualise and understand financial equity challenges and solutions while working with community-based collaborators so we can all appropriately address questions and concerns. Addressing persistent gaps in students' ability to address such challenges required us to critically examine how power operates within research teams, and to develop proactive strategies to empower all team members to safely and respectfully navigate ethical dilemmas while in community. Recognising this gap, we worked together to identify strategies for equipping students and early-career researchers with the skills and knowledge to navigate complex ethical decision-making before engaging with communities.

Group exploration of ethics in practice through reflexivity exercises

To address these challenges, we identified a need for internal principles to guide our own ethical decision-making when working in Arctic community settings. The lab-based team engaged in structured reflexivity exercises designed to explore individual positionality and its influence on decision-making. These exercises, including *Social Identity Mapping* and *Power Flower*, are tools for examining how our lived experiences, social circumstances, and intersecting identities influence our perceptions and decision-making as researchers.[33] For our team, some principles to guide ethical decision-making in the field included practicing cultural humility and awareness of ethnocentrism, principled

[33]Just Associates (JASS), "Power Flower"; and Jacobsen et al., "Social Identity Map."

disagreement, and attention to power dynamics. Merely understanding social identities does not lead to actions that dismantle oppressive systems.[34] Accordingly, we identified actionable ways to translate the outcomes of group reflexivity exercises into real behaviour change during community-engaged research activities. Furthermore, we discussed limitations of individual behaviour against institutional barriers to equity in community-engaged research.

Sharing our experiences of ethical dilemmas in community-engaged research

To better anticipate and navigate ethical ambiguities while working in/with communities, we collectively generated a list of scenarios we had experienced where the 'right' ethical choice was not evident. From these scenarios, we identified common contexts that create ethical dilemmas and require proactive planning and training among research team members, as well as with project members who are from communities, to prepare students and early-career researchers for ethical decision-making throughout community-based research activities. The themes generated from our internal discussions included power imbalances between researchers and community members; power dynamics within research teams; encountering and addressing harassment and discrimination; mental health and safety during research activities; and navigating resource (in) equity. We expand on each of these themes with four example scenarios, including open-ended questions for discussion (Figures 1–4). Importantly, this is not a comprehensive review of all drivers of ethical dilemmas in community-engaged research, nor of all approaches to teaching ethical research practices. The following themes are specific to our team's experiences, but they are likely to resonate with, and be encountered by, many others engaged in community-based research.

Common contexts that shape ethical dilemmas in community-engaged research

Imbalanced power dynamics in research teams and community partnerships

Creating safe research environments in community-based settings requires a shift away from top-down institutional policies and towards a model of shared responsibility. Power dynamics influence decision-making, interpersonal relationships between researchers, and relationships with community collaborators.[35] For students, being prepared to recognise and critically engage with power imbalances is essential to ethical decision-making in the field. Within research teams, power imbalances often stem from differences in seniority, access to resources, disciplinary expertise, and lived experience. Senior researchers typically have greater authority and influence over project design and funding allocations. Students and early-career researchers may feel hesitant to voice concerns or challenge their decisions due to fear of personal repercussions. Power imbalances can be challenging in field settings where time-sensitive decisions must be made, often without clear protocols. Even with the best intentions and in efforts to be helpful, students may lack the authority to respond to community member concerns about

[34]Margolin, "Unpacking the Invisible Knapsack."
[35]Duquette-Rury, "Navigating Ethical Issues."

Ethical dilemma in the field: Power dynamics

You are a non-Indigenous junior researcher working in a small Indigenous community in the Arctic as part of a community-engaged research collaboration. A group of researchers has just flown in, including a new colleague- a non-Indigenous senior researcher who has a history of Arctic fieldwork. During a meeting with community research partners, he shares his experience working with other circumpolar Indigenous communities. At one point he claims that he has "gone native" because he knows so much about Indigenous cultures, and that he is "basically native" himself.

The comment feels like a microaggression; inappropriate and dismissive of Indigenous identity. You glance at your community research partners and Indigenous colleagues, but nobody outwardly reacts. Did they hear him? If so, are they choosing to ignore it? Would calling him out cause more harm than good?

As a junior researcher, confronting a senior colleague could be risky, especially since you'll be sharing living quarters for the next week. At the same time, letting the remark go unaddressed feels like a violation of your values. He should be aware of the implications, and how his phrasing can impact working relationships. Would speaking up be an act of solidarity, or could it undermine the autonomy of your community research partners, particularly in a cultural context that tends to be non-confrontational? How do you balance your responsibility to challenge harmful rhetoric while respecting community norms and power dynamics in your research team?

Figure 1. Ethical dilemma in the field: power dynamics.

fundamental aspects of the research process.[36] This can create tensions in the field when students are positioned as intermediaries, with community members expecting responsiveness that they are not always able to provide.

Senior researchers may be operating in their own respective power deficits. Power imbalances *within* institutions shape the way research unfolds on a day-to-day basis in ways that are often unclear to students and early-career researchers. PIs often strategise about which research entity or personnel will take on specific responsibilities based on known bureaucratic hurdles, and may not communicate these histories to all students. University administrative systems are often not aligned with administrative norms in communities. Navigating bureaucratic limitations behind the scenes is time-intensive and directly impacts on-the-ground research activities. Institutional constraints can include delays in university contract approvals with community members, challenges in securing subawards with Indigenous community entities, and difficulties developing budgets and contracts with small community offices. Other hurdles include Institutional Review Boards delays, slow travel reimbursements for community members, and challenges in obtaining approval for cash payments.[37] These issues often require workarounds, leaving PIs and junior researchers to manage challenges in real-time while

[36]Tondu et al., "Working With Northern Communities."
[37]Rink et al., "Ethical Challenges and Lessons Learned"; and Peterson et al., "Applying Community-Based Participatory Research Principles."

working with community members, sometimes with little communication from their institution.

Students and early-career researchers – situated between the outside academic institution and the formal and informal local governance structure – need training to prepare them to work with formal and informal community decision-making structures in Arctic community settings. For example, Elders are recognised as holding power and authority that younger community members may not have, and should be consulted in many decisions. This cultural component of community power structures does not always mirror the distribution of power and respect for authority that Western researchers are accustomed to.[38]

Power imbalances in research involving Indigenous communities of the Arctic do not exist in a single moment; they are embedded in relationships that have both histories and futures.[39] Every interaction between researchers and community members has ripples that extend beyond the individual, influencing trust, collaboration, and future engagement. This is particularly pronounced in small communities where relationships are closely interconnected, and where research-related tensions can have lasting effects on the trustworthiness and expectations about the benefits of research collaborations. Failing to recognise these dynamics may perpetuate extractive and harmful practices, even when researchers are cognisant of ethical standards. For example, researchers who are from the communities where research is conducted may face different pressures, including expectations to act as cultural brokers or internalised obligations to prioritise research over their own wellbeing. The emotional and physical toll of these dynamics are often under-acknowledged.

It is critical that students and early-career researchers (or any new member of a research team) receive transparent communication about historic relational tensions in community-academic research partnerships to avoid making the same mistakes, provide justification for established processes, and context for any lasting sensitivities. Many Indigenous communities worldwide have been oppressed by government institutions to varying degrees, requiring researchers to be fully aware of mistreatment in specific and local communities.[40] It is not enough for incoming researchers to distinguish themselves as different from 'bad actors' of the past; transparency around known harmful histories is an actionable step towards accountability and systemic change.[41] Academic teams have a responsibility to learn and discuss local history of the communities we work with, to foreshadow and understand what tensions might arise ahead of time, and to prepare students to make ethical choices within the ripple effect of history. Figure 1 describes an ethically complex scenario involving power dynamics in an Arctic community setting, and questions to prompt discussion.

Encountering and addressing discrimination and harassment

Gendered power imbalances can create environments where early-career researchers (especially women, nonbinary researchers, and researchers from marginalised

[38]ICC, "Circumpolar Protocols for Ethical and Equitable Engagement."
[39]Ellam Yua et al., "A Framework for Co-Production."
[40]Kelley et al., "Research Ethics."
[41]Margolin, "Unpacking the Invisible Knapsack."

backgrounds) face increased risk of harassment or discrimination, particularly in fieldwork settings.[42] These risks may come from within research teams, through other interactions while in the field, or even from community members. In recent years there has been significant progress in addressing some specific challenges faced by women in polar research, including harassment by other researchers or staff that has historically gone underreported or unaddressed.[43] Progressive policy changes have been made to address fieldwork safety in polar research environments, including a restructuring of the sexual harassment prevention and response policies of the National Science Foundation's U.S. Antarctic program.[44] These efforts mark critical steps towards safer fieldwork conditions, yet they remain largely focused on hierarchical research team dynamics, where institutional policies can be applied to regulate researcher behaviour, and do not address interactions with community members.

For individuals or teams embedded within a community in the Arctic, the reality of discrimination based on social identity is more complex and cannot be addressed by institutional policies alone. Unlike fieldwork in isolated camps or research stations, where safety concerns are primarily internal to the research team, community-based research involves navigating internal team dynamics, bridging cultures, operating within different legal and social systems, and negotiating power imbalances that shift depending on context. For example, researchers may come from a culture with a different perspective on gender roles and decision-making power than the community they are working in. If inclusion or exclusion on the basis of gender is not aligned with the core values of an individual researcher, space should be made to process those issues with the research team. For example, when selecting participants for research related to male-dominated activities, like hunting, should a team only select male hunters at the discretion of community leaders? Or is it justified to insist that female perspectives are included as well? Reacting to community power structures that are unfamiliar or different from a researcher's personal cultural norms of equality, including gender roles, can risk overlooking less overt expressions of power within a community and perpetuating ethnocentrism.[45]

Beyond exclusion, discrimination in the field can take the form of implicit biases, dismissive treatment, or outright harassment. For students and early-career researchers with less institutional power, the ambiguity of these situations can make it difficult to know how to respond. When researchers, especially those early in their careers, or community members feel unsafe or unsupported- whether in terms of physical, mental, or emotional safety- it can undermine the sustainability of collaborative research relationships and impair progressive outcomes.

To prepare students to ethically address discrimination that they either observe or experience in the field, research teams must collaboratively develop a plan for how to address issues of exclusion, harassment, or other forms of identity-based harm if they arise. Students and early-career researchers should understand that they are not alone in having these experiences, and that there are strategies for mitigating harm and

[42]Clancy et al., "Survey of Academic."
[43]Dance et al., "Coming in from the Cold"; Moraru et al., "Polar Fieldwork in the 21st Century"; and Tondu et al., "Working With Northern Communities."
[44]NSF, "Review of NSF's U.S. Antarctic Program."
[45]Solórzano and Yosso, "Critical Race Methodology."

Ethical dilemma in the field: Addressing boundaries and harassment

You are a junior researcher working with a community where Facebook is a primary method of communication. To maintain good relationships and stay informed about local events, you accept friend requests from many community members. Shortly thereafter, you begin receiving private messages that make you uncomfortable. Some ask about your marital or relationship status, while others comment on your appearance in a way that feels uncomfortable. The senders are not necessarily the people you work with directly, but the messages leave you feeling uneasy.

You wonder how to respond. Ignoring the messages might avoid confrontation, but it doesn't stop them from continuing. Blocking the senders feels like the safest option, but you wonder if that could create tension when you return to the field and see them in-person.

Should you bring this issue to your research team, or would that over-complicate the situation? Would discussing it help establish clearer boundaries for online engagement, or would it risk reinforcing stereotypes about the community? Should you document these messages in case the behavior escalates? More importantly, how can you balance professionalism, personal safety, and ethical engagement in an online space that is also central to your research relationships?

Figure 2. Ethical dilemma in the field: addressing boundaries and harassment.

advocating for the safety of all researchers and community members. Figure 2 describes an ethically complex scenario involving boundaries and harassment in a community-engaged research setting.

Mental health and safety during community-based research

Arctic fieldwork can be mentally and emotionally taxing, including in community-engaged environments. Researchers may face isolation, cultural dissonance, and the pressure of navigating complex ethical dilemmas the 'right' way.[46] For students, these challenges can be complicated by ongoing school obligations. While standards for physical safety protocols during fieldwork are common in polar research, fewer standards exist to protect the mental health of researchers.[47]

Researchers are often not trained to address mental health concerns during fieldwork or community-based activities.[48] Researchers embedded in community settings are often exposed to both positive and negative events that affect the community, which is a necessary function of relationship-building and understanding the conditions that impact research activities and community priorities. However, researchers embedded in communities may experience vicarious trauma or even primary trauma, often with limited resources to provide or receive psychological support. Additional mental health challenges, such as occupational burnout, compassion fatigue, and difficulties maintaining self-care and professional boundaries are also critical considerations throughout community-based work.

[46]Hummel and El Kurd, "Mental Health and Fieldwork."
[47]Tucker and Horton, "The Show Must Go On."
[48]Ibid.

Remote research settings can introduce further stressors, including adaptation to unfamiliar physical environments, adjusting to seasonal Arctic daylight/darkness, and limited access to medical care. Without adequate preparation these challenges can escalate, posing risks to researchers' and community members' wellbeing. Ethical dilemmas may arise when researchers and community partners face mental health challenges, especially in absence of professional mental healthcare providers.

Researchers of all career stages benefit from receiving resources and training to navigate mental health challenges while conducting fieldwork or visiting Arctic communities, for their own safety and the safety of community members.[49] Perceptions and cultural understandings of mental health vary across Arctic communities. Recognising these differences and engaging in team discussions to review appropriate response strategies is essential for developing effective mental health support plans. Prior to conducting community-based researcher activities, research teams should identify appropriate mental health resources in the community or from their home research institution, and agree on a protocol to respond to mental health events.[50]

Proactively strategizing to support researchers, community partners, or other individuals who experience mental health challenges can help support overall safety and wellbeing in community-engaged research collaborations. Figure 3 describes an ethically complex scenario involving mental health throughout community-engaged research.

Addressing underlying resource (in)equity and reciprocity

Equity and reciprocity are foundational conditions for fostering trust and ensuring mutual benefit in community-driven and community-engaged research. These principles emphasise the equitable sharing of resources, recognition of all partners' contributions, and prioritisation of community wellbeing alongside research objectives. Sharing is a fundamental value in many Indigenous communities we've worked with in the Arctic, where gifts are often given and received. However, even in well-planned and co-designed community and academic research partnerships, institutional funding structures present barriers to financial equity. Grant agencies may place restrictions on how funds can be used in community settings, such as disallowing direct payments to community members or requiring extensive documentation for reimbursement. These limitations can strain the collaborative process, especially in communities that have significantly fewer financial resources compared to the institutions where researchers originate.[51] Achieving programmatic financial equity- if even possible- requires navigating systemic challenges, including constraints imposed by institutional funding mechanisms and entrenched power dynamics within research collaborations.[52] Ethical ambiguities abound in these circumstances, especially for students and early-career researchers who have less authority over distributing resources.

Wealth inequality between research institutions and communities, researchers and community members, within the community, and within research teams can also create tensions. In our own community-engaged research experiences we have observed clear

[49]Butcher, "Qualitative Research Methods I."
[50]Hill et al., "Changing the Culture."
[51]Degai et al., "Shaping Arctic's Tomorrow."
[52]Doering et al., "Improving the Relationships."

Ethical dilemma in the field: Navigating mental health

You are a graduate student working with a small community in the Arctic, and feeling pressure to collect data within a limited timeframe. You have collaborators in the community, but you're still finding your place socially. Upon arrival to the community you feel off and uncomfortable being physically isolated in a remote location, and socially disconnected from your more senior colleagues. You push these feelings aside, convincing yourself that stepping outside of your comfort zone is a normal part of fieldwork and necessary for professional growth.

While conducting interviews with community members, several share about traumatic experiences, including abuse, and you can't stop thinking about it. The experiences of participants make you feel distressed, sad, and unsure how you can help as a junior researcher. You begin avoiding certain community members, and can't work up the courage to recruit more interview participants. You feel anxious and like you have no one to talk to. You won't be able to return to the field to conduct additional interviews for months, which could seriously affect your research and graduation timeline. Furthermore, your research proposal outlined co-analysis of the interview data with several community partners, but given the sensitivity of the content you're not sure that is an appropriate method anymore. You start to wonder if your presence in the community is becoming more of a burden than a benefit to the partnership.

How can you support the community members who disclosed traumatic experiences? How can you navigate your declining mental health? Who should you turn to for support? How do you communicate these challenges to your senior colleagues or your advisor without jeopardizing your professional standing?

Figure 3. Ethical dilemma in the field: navigating mental health.

disparities between the wealth of the institutions we represent and the wealth of some communities we've worked with. Financial disparities are sometimes communicated directly by community members, who may express needs for healthcare, food, or simply financial support to care for their children. Wealth inequality is not limited to the divide between communities and academic institutions; it is also evident within research teams themselves, especially for students. In the United States, students receive modest stipends, often living just above the poverty line, and in some cases may not be able to afford health insurance to support their own healthcare needs. Students may rely on personal funding to cover travel, lodging, and meals during research activities, to be reimbursed by their institution later. In this context, students and early-career researchers may struggle to meaningfully respond to material and financial needs of community research partners when they themselves face significant financial insecurity.

Often for students and early-career researchers, engaging in community-based research can evoke a strong desire to 'help' or 'give back' to individuals in communities they are working in.[53] While this sentiment reflects genuine care, it is important to have a plan with the broader research team to approach these efforts ethically. Awareness of one's own privilege or benefit within academic institutions, especially relative to community collaborators, may create a sense of obligation to provide financial support. However, providing such support can result in

[53]TallBear, "Standing With."

Ethical dilemma in the field: Resource (in)equity and reciprocity

You are a graduate student from an urban university engaged in a research partnership grounded in a co-production framework with a small Arctic community. Over time, you've built friendships with community members, both in person and on social media. Lately, you've been receiving requests for financial help from people both within and outside the research collaboration. Some have offered to sell you handmade items like artwork and clothing, while others have asked for direct cash or Venmo payments to cover urgent expenses like food, school supplies, medical costs, or travel to see family. You start sending money when you can, and a few recipients have mentioned paying you back, but months have passed and it's unclear if they will be able to.

You recognize your financial privilege compared to many community members, and giving feels like the right thing to do. However, as a graduate student on a tight budget, you worry about the sustainability of constantly providing financial support. The situation is also starting to feel transactional; like you're paying community members to continue working together.

How should you navigate these requests? Should you continue giving people cash or send Venmo payments? Who on your research team should you talk to about this? Would asking your community research collaborators for guidance respect or violate the privacy of those making the requests? And how should you process your own feelings about your positionality and wealth, while simultaneously having very few financial resources as a student? You want to respond in a way that is compassionate and supports the long-term goals of the research partnership, but how can you address immediate needs without reinforcing dependency or altering local social dynamics?

Figure 4. Ethical dilemma in the field: resource (in)equity and reciprocity.

challenging consequences, including an expectation of others providing such support in the future, or perpetuating paternalistic research structures; setting a precedent for 'giving back' can reinforce a transactional and binary relationship between the researcher and the researched in the process of knowledge production.[54] To address these challenges, research teams must establish clear boundaries and frameworks to promote financial equity both within their research team and across the community collaborative. Figure 4 describes an ethically complex scenario involving resource equity in community-engaged research.

Approaches to teaching and developing ethical decision-making frameworks

Ensuring that understanding of ethical standards and behaviour are embedded in researcher training helps create environments where all researchers are respected, can work with dignity, and have access to support systems when needed. Gaps remain regarding best practices for effective instruction of ethics protocols, but the variability of roles, research topics, and partnership structures necessitate team-

[54]Ibid.

based and contextualised instruction in most cases.[55] Integrated efforts across institutions, project leaders, and community leaders are vital for building a research culture in the Arctic that values both safety and ethics, enabling future researchers to thrive in challenging research conditions without compromising their wellbeing or the integrity of their work.[56] The following approaches and considerations can help research teams develop their own principles and frameworks to guide decision-making around ethical dilemmas that occur during community-engaged research in the Arctic. While scenarios and practices are Arctic specific, they are also applicable across global contexts wherever community-based research is done.

Creating a place of safety and trust for reflexivity exercises

For research teams to engage meaningfully in reflexivity exercises, leaders must intentionally cultivate an environment of safety and trust. This environment seldom emerges passively; it requires deliberate effort from senior researchers to establish a foundation of open and collaborative dialogue.[57] Trust within a team is not assumed, but is built through actions and a demonstrated commitment to valuing diverse perspectives. Students and early-career researchers may hesitate to share their lived experiences or social identities with mentors or supervisors for fear of repercussions. For example, a student may have concern that disclosing challenges related to accessibility while travelling or working in a community may make them seem unfit to complete research tasks.[58] However, this reluctance can stifle critical reflection about how researchers' identities influence community relationships and the ability to carry out the research required to meet project goals. Creating structured spaces for open dialogue, such as facilitated discussions or peer-led reflection groups, can help mitigate these barriers.

Encourage debriefing mistakes as a learning opportunity

Ethical decision-making involves risk, and mistakes are inevitable, but mistakes provide opportunities for team reflection and response. Research teams should normalise discussions of 'failures' and 'lessons learned' as a tool for collective learning and practice. In order to learn from failures, there must first be enough humility and trust in the research collaborative to discuss them openly. By creating an environment of trust and reflexivity, teams can encourage the disclosure of 'failures" as an opportunity for brainstorming and solution-finding. Setbacks can be used as an opportunity to refine practices and strengthen relationships.

Engage in reflexivity practices before, during, and after community engagement

Ethical reflexivity should not be a one-time exercise but an ongoing practice before, during, and after community engagement. Structured activities like social identity mapping, positionality discussions, cultural sensitivity training, and case-based learning allow

[55]Anderson et al., "Research Ethics Education."
[56]Cadman et al., "Using Positionality."
[57]Lucero et al., "Engage for Equity."
[58]Dance et al., "Coming in from the Cold."

researchers to see issues as systemic rather than personal, as well as examine biases and power dynamics.[59] Incorporating reflexivity practices into ethics training during undergraduate and graduate education can prepare researchers to navigate complex interpersonal and community dynamics effectively. Explicitly reflecting on positionality allows students to better understand how their identity impacts personal communication, question formation, and other research activities.[60] Negative stigmas about the complexity of understanding and implementing ethical research practices can be treated through introducing key concepts early-on in undergraduate and graduate programs. Early-career programs can help alleviate pressure and reduce potential misunderstandings when prospective researchers are conducting their own research in the future. Additional questions for teams engaged in Arctic research to practice reflexivity and discuss ethical decision-making guidelines are provided in Appendix A.

Establish relational scaffolding, point people, and mentors for ethical decision-making

Ethical decision-making is strengthened by communication throughout relations, including through advisory roles, debriefs, and trusted networks that facilitate ongoing dialogue. Research teams can support this by designating trusted mentors and advisors within and outside the team – including community liaisons- fostering a culture where guidance can be accessed in any environment. It is critical that community research partners are invited to act as mentors/advisors to help students and early-career researchers navigate complex situations in the field, and to facilitate the translation of diverse expertise.[61] Establishing formal peer training and advisory structures ensures that ethical decision-making is a shared responsibility, while providing early-career researchers with access to experienced mentors and advisors helps them navigate complex challenges with confidence and support. Defining clear mentorship and relationship networks helps to protect and support all people involved.

Co-creating ethical standards for research collaborations

After completing responsibilities for internal reflexivity practices and learning community research histories, community engaged collaborations could also co-create specific ethical standards with community research partners.[62] To move away from hierarchical research structures, teams must develop collaborative ethical frameworks that prioritise relational accountability. Using established frameworks like regional or ICC research ethics protocols can provide a foundation for ethical engagement, but each community partnership and the people involved will have variations in ethical behaviour expectations and strategies for problem-solving ethical dilemmas.[63] Collectively establishing decision-making structures that include iterative feedback and collective governance

[59]ARCTISEN, "Research on Culturally Sensitive Tourism in the Arctic"; ArcticNet, "Ethical Research Training Opportunities"; and Cadman et al., "Using Positionality."
[60]Jacobsen et al., "Social Identity Map."
[61]Cadman et al., "Using Positionality."
[62]Anderson et al., "Research Ethics Education"; and Ryan-Davis and Scalice, "Co-Creating Ethical Practices."
[63]ICC, "Circumpolar Protocols for Ethical and Equitable Engagement"; and Kawerak, Inc. et al., "Kawerak-Region Tribal Research Protocols."

ensures that research processes are responsive to community needs. This process can occur through workshops, structured discussions, and sharing circles.

Conclusion

As community-engaged research expands in the Arctic, transdisciplinary teams must develop and teach ethical decision-making frameworks that centre equity and the wellbeing of all collaborators. Building trust, fostering open dialogue, and integrating ethical training into research practices are essential for preparing early-career researchers to navigate ethical dilemmas during community-based research. While changing ethics training alone will not dismantle colonial systems, embedding these practices into research design strengthens trust and contributes to anticolonial practice. Simultaneously, contemporary cross-disciplinary and institutional developments in equity-focused research practices highlight that the challenges of and opportunities for improved ethical decision-making preparedness for researchers extends beyond any single field. This work complements ongoing efforts across disciplines, reinforcing the value and desire to equip early-career researchers with skills to navigate ethical decision-making in community contexts. Fundamentally, these suggestions seek to make progress towards decolonial actions that will shape the future of community-led research. Further exploration, discussion, and sharing of strategies to teach ethics in practice is needed to advance the co-creation of ethical standards in community-engaged research in the Arctic.

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Appendix A. Reflexivity and ethics discussion questions for Arctic research teams

These discussion questions can help research teams practice reflexivity, examine their motivations for community-engaged research, and develop decision-making guidelines for responding to ethical challenges.

Motivations and intentions

- Why do I want to engage in community-based research?
- What perspectives, experiences, or biases do I bring to this research collaboration?
- Why am I the right person for this project?

Community relationships

- Who is my trusted contact or established point person in the community?
- What do I need to learn before arriving to the community for in-person research activities? (e.g. local histories, language, cultural norms, governance structures).
- What is the history of research in this community, and how have past experiences shaped current perspectives on researchers?

Team composition and representation

- What perspectives are overrepresented on our research team?
- What perspectives are underrepresented on our research team?
- How do we assess whether our team has the right expertise, relationships, and accountability to carry out this work?
- What are the strategies in place to build local research capacity?

Preparedness

- What is our plan to handle unexpected issues without straining community resources?
- How will we address mental health challenges in the field?
- How are injuries or illnesses handled while working in community settings?
- What is our plan if we experience technology failures?
- Who can we enlist for advice or other assistance?

Ethics and equity

- What are the ethical principles that guide individual decision-making?
- What ethical principles guide our decisions as a team?
- How do we ensure that community members and research partners have meaningful decision-making power throughout the research process?
- What are strategies to co-create ethical standards and decision-making guidelines with community research partners?
- How will we navigate ethical dilemmas that arise during research activities, particularly when community perspectives might differ from institutional ethics guidelines?
- How do our research activities promote sovereignty and self-determination of Arctic Indigenous peoples?

See also Arizona State University Principled Innovation® Card Decks.