Political ecology and decolonial research: co-production with the Iñupiat in Utqiaġvik

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Abstract

Environmental social science research designs have shifted over the past several decades to include an increased commitment to multi-, inter-, and transdisciplinary team-based work that have had dual but complementary foci. These address power and equity in the substantive aspects of research, and also to adopt more engaged forms of practice, including decolonial approaches. The fields of political ecology, human geography, and environmental anthropology have been especially open to converge with indigenous scholarship, particularly decolonial and settler colonial theories and research designs, within dominant human-environmental social science paradigms. Scholars at the forefront of this dialogue highlight the ontological (ways of knowing), epistemological (how we know), and institutional (institutions of higher education) transformations that need to occur in order for this to take place. In this article we contribute to this literature in two ways. First, we highlight the synergies between political ecology and decolonial scholarship, particularly focusing on the power dynamics in research programs and historical legacies of human-environmental relationships, including those of researchers. Second, we explore how decolonial research pushes political ecologists and other environmental social scientists to not only consider adopting international and local standards of working with, by and for Indigenous Peoples within *research programs* but how this work ultimately extends to research and education within their home *institutions* and organizations. Through integrating decolonized research practices in the environmental social sciences, we argue that synthesizing multiple knowledge practices and transforming institutional structures will enhance team-based environmental social science work to improve collaboration with Indigenous scientists, subsistence practitioners, agency representatives, and sovereign members of Indigenous communities.

Keywords: Alaska; collaboration; co-production; decolonial; Indigenous Knowledges; Iñupiaq Peoples

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Résumé

La conception de la recherche en sciences sociales de l'environnement a évolué au cours des dernières décennies pour inclure un engagement accru dans le travail d'équipes multidisciplinaires, inter et transdisciplinaires qui ont des objectifs doubles mais complémentaires. Celles-ci portent sur le pouvoir et l'équité dans les aspects de fond de la recherche, et aussi pour adopter des formes de pratique plus engagées, y compris des approches décoloniales. Les domaines de l'écologie politique, de la géographie humaine et de l'anthropologie environnementale ont été particulièrement ouverts à la convergence avec l'érudition indigène, en particulier les théories et les conceptions de recherche décoloniales et coloniales, au sein des paradigmes dominants des sciences sociales humaines et environnementales. Les chercheurs à l'avant-garde de ce dialogue soulignent les transformations ontologiques (les moyens de connaissance), épistémologiques (comment nous le savons) et institutionnelles (les établissements d'enseignement supérieur) qui doivent avoir lieu pour que cela se produise. Dans cet article, nous contribuons à cette littérature de deux manières. Tout d'abord, nous soulignons les synergies entre l'écologie politique et la recherche décoloniale, en mettant particulièrement l'accent sur la dynamique du pouvoir dans les programmes de recherche et les héritages historiques des relations entre l'homme et l'environnement, y compris ceux des chercheurs. Deuxièmement, nous examinons comment la recherche décoloniale pousse les écologistes politiques et autres spécialistes des sciences sociales de l'environnement à envisager non seulement l'adoption de normes internationales et locales de travail avec, par et pour les peuples indigènes dans le cadre de programmes de recherche, mais aussi comment ce travail s'étend finalement à la recherche au sein de leurs institutions et organisations d'origine. En intégrant les pratiques de recherche décolonisées dans les sciences sociales environnementales, nous soutenons que la synthèse de multiples pratiques de connaissance et la transformation des structures institutionnelles favoriseront le travail d'équipe en sciences sociales environnementales pour améliorer la collaboration avec les scientifiques autochtones, les praticiens de la subsistance, les représentants des agences et les membres souverains des communautés indigènes.

Keywords: Alaska; collaboration; co-production; décolonial; peuples indigènes connaissances; Iñupiaq

Resumen

Los diseños de investigación de las ciencias sociales ambientales se han transformado en las últimas décadas para incluir un compromiso cada vez mayor con el trabajo en equipo multi-, inter- y transdisciplinario que ha tenido focos duales y complementarios a la vez. Estos abordan temas de poder e igualdad en aspectos importantes de la investigación y también adoptan formas de práctica más comprometidas, lo que incluye los enfoques descoloniales. Los campos de la ecología política, la geografía humana y la antropología ambiental han estado particularmente abiertos a converger con cuestiones académicas indígenas, en particular con teorías y diseños de investigación desconoloniales o de colonialismo de asentamiento, con paradigmas dominantes de las ciencias sociales ambientales/humanas. Los académicos que encabezan este diálogo destacan las transformaciones ontológicas (maneras de conocer), epistemológicas (cómo sabemos) e institucionales (instituciones de educación superior) que deben sucederse para que ello ocurra. En este artículo, hacemos un aporte a esta literatura de dos maneras. En primer lugar, señalamos las sinergias que existen entre la ecología política y la investigación desconolonial, en centrándonos en particular en las dinámicas de poder de los programas de investigación y los legados históricos de relaciones entre los humanos y el medio ambiente, incluidas las de los investigadores. En segundo lugar, exploramos de qué modo la investigación desconolonial lleva a los ecologistas políticos y a otros científicos sociales ambientales a pensar no solo en adoptar estándares locales e internacionales para trabajar con, por y para los Pueblos Indígenas en el marco de programas de investigación, sino también en cómo este trabajo en última instancia se extiende a las investigaciones que se realizan en sus propias instituciones y organizaciones. Al integrar prácticas de investigación descononiales en las ciencias sociales ambientales, postulamos que la sintetización de múltiples prácticas de conocimiento y la transformación de estructuras institucionales enriquecerá el trabajo en equipo en materia de ciencias sociales ambientales para mejorar la colaboración entre científicos indígenas, quienes adoptan prácticas de subsistencia, representantes de organismos gubernamentales y miembros soberanos del pueblos indígena.

Keywords: Alaska; colaboración; coproducción; descolonial; conocimientos indígenas; Iñupiaq

1. Introduction

Research designs in environmental social science have shifted over the past several decades to include an increased commitment to multi-, inter-, and trans-disciplinary team-based work that prioritizes knowledge integration (Ens *et al.* 2015; Housty *et al.* 2014; Jamsranjav *et al.* 2019; Petrov *et al.* 2016; Velasquez Runk 2014). These changes have led to an attentiveness to power and equity in the substantive aspects of research programs directed toward complex more-than-human political ecologies, and the adoption of more engaged forms of practice, including decolonial approaches (Cote and Nightingale 2012; Schulz 2017; Svarstad, Benjaminsen and Overå 2018). Given a longstanding theoretical attentiveness to power, investment in local and Indigenous knowledge systems and practice in political ecology, adopting decolonial approaches can create new norms in knowledge co-production and practice (Escobar 2018; Gombay and Palomino-Schalscha 2018; Radcliffe 2018; Schulz 2017). Scholars interested in this convergence highlight the ontological (ways of knowing), epistemological (how we know), and institutional transformations that need to occur (Coombes, Johnson and Howitt 2012; Schulz 2017).

In this article, we contribute to the growing literature on knowledge integration in political ecology by highlighting two dynamics as potential areas of convergence. **First**, we describe the synergies between political ecology and decolonial scholarship, focusing in particular on how both are instructive in analyzing power dynamics in research programs and the historical legacies of human and more-than-human relationships, including those of researchers. **Second**, we explore how decolonial research pushes political ecologists and other environmental social scientists to not only consider adopting international and local standards of working with, by and for Indigenous Peoples within *research programs*, but how this work ultimately diverges from other engaged research and team-based science by asking researcher to reevaluate *core theories* they apply, and **thirdly** demanding change within the institutions and organizations within which they hold affiliations. As Schulz (2017: 135) argues, "The main point is that developing a genuinely decolonial perspective requires us to practice border thinking from our own point of view, and to delink ourselves from the hegemonic rationalities that are put in place to police the boundaries of modern scholarly discourse."

To demonstrate the intersecting possibilities between decolonial approaches and political ecology, we draw upon existing research with community members in Utqiaġvik, Alaska, where we (non-Indigenous and Indigenous researchers) co-designed an engaged research project with Iñupiaq advisors and participants. We analyze how our initial collaborative approach attentive to Indigenous protocols and local norms and actor-oriented and poststructuralist approaches to power was fruitful but still not sufficient without adopting decolonial methodologies (see Svarstad, Benjaminsen and Overå 2018). We conclude by offering some recommendations for researchers to address the challenges and obstacles that remain within the environmental social sciences. Throughout the following pages, we adopt the terms Indigenous Peoples, Alaska Native Peoples, and American Indian Peoples. We use these terms to refer to peoples, communities, cultures, and/or their sovereign governments; however, we note that these identity markers can be fraught and troubled (Sidorova 2019). Many individuals and communities may not identify as, or subscribe to, these terms to describe their identities, heritage, and origins (Niezen 2003).

2. Engaged and decolonial research

Engaged research attempts to move beyond academic or institutional spheres by emphasizing active involvement of stakeholders and participants throughout the research process (Harney *et al.* 2016; Osborne 2017). One of the key features of engaged research design is the co-production, or the integration of different knowledge systems to create new knowledge or, in the case of some decolonial approaches, a "two-eyed" way of seeing (Alhojärvi and Sirviö 2018; Iwama *et al.* 2012; Rodriguez 2017; Tengö *et al.* 2014; Gallopín and Vessuri 2006; Zanotti and Palomino-Schalscha 2016). The growth of engaged work within the environmental social sciences and political ecology has been motivated in part by the recognition that research done *with* instead of *on* people and communities is ethical, and produces better science and more directly beneficial outcomes to all stakeholders (Kirsch 2010; Low and Merry 2010; Sillitoe 2016). Engaged research encompasses a variety of paradigms, including but not limited to community-based research, community-based participatory

research, participatory action research, action research, feminist research, participatory evaluation, and empowerment evaluation (Israel *et al.* 1998).

We suggest that decolonizing research is similar to, but distinct from, other forms of engaged research interested in the co-production of knowledge. Decolonizing research can be broadly defined as work which "privileges Indigenous voices, experiences, knowledge, reflections, and analyses" (Lightfoot 2016: 72) and often includes working with Indigenous paradigms, such as Indigenous cosmologies, worldviews, and philosophies as key *theoretical* frameworks from which to enact decolonial work. Similar to other engaged forms of research, in decolonizing work the control and construction of research goals, methods, and outputs are shared with Indigenous governments, project participants, communities, institutions of higher education, and/or local entities (Tuhiwai Smith 1999, 2014). Yet, unlike other forms of engaged research, decolonial research is not just about giving communities equal decision-making and power-sharing roles as researchers. It is also about using the research project to change dominant rationalities and practices, especially Western scientific paradigms and institutions, including the home institutions of research teams. In academia this has manifested through addressing conflicts of interest, research funding sources, and attentiveness to protocols, such as the National Science Foundation's Principles of Conducting Research in the Arctic. Decolonial research, in this way, requires that researchers address questions of equity, power, and justice, not simply in the substantive aspects of research questions and hypotheses, but making broader impacts on sovereignty and self-determination as well (Bohensky and Maru 2011; Low and Merry 2010; Menzies 2015; Muhammad *et al.* 2015).

Decolonial work also prioritizes weaving Indigenous Peoples' forms of knowledge, science, and practice into all facets of the research process, instead of merely incorporating Indigenous knowledges as an extractive or superficially participatory site for data collection and analysis. Because of these distinctions, decolonial researchers have been partners with Indigenous researchers invested in indigenizing research practices to develop ways to recognize knowledge systems and provide guidelines on knowledge co-production, especially given the colonial legacies of practice (Berkes 2012; Barnhardt and Kawagley 2005). Decolonial work shares much with Indigenous methodologies, whose main purpose is "to ensure that research on Indigenous issues is accomplished in a more sympathetic, respectful, and ethically correct fashion from an Indigenous perspective" (Louis 2007: 133).

Despite an increased receptivity to engaged and decolonial methodologies, we argue that there remain significant challenges for political ecologists and environmental social scientists to engage with decolonial research. Notwithstanding these challenges, we suggest that engagement with decolonial methodologies is critical for more inclusive, transformative and ethical science that attends not only to environmental change but also Indigenous Peoples' approaches and responses to that change. For example, decolonial paradigms address and respond to ongoing calls for innovative solutions to address current and historical issues, such as colonization, climate change, mining, and political instability, and to support Indigenous Peoples to do so (Loh and Harman 2005; Maffi and Woodley 2012). We furthermore argue that decolonial paradigms can not only transform how we do political ecology but also deepen transdisciplinary research practice – especially expanding the representation of different knowledges through transdisciplinary work with Indigenous Peoples. Lange *et al.* (2012: 27) suggest

> ..transdisciplinary research needs to comply with the following requirements: (a) focusing on societally relevant problems; (b) enabling mutual learning processes among researchers from different disciplines (from within academia and from other research institutions), as well as actors from outside academia; and (c) aiming at creating knowledge that is solution-oriented, socially robust (e.g. Gibbons 1999), and transferable to both the scientific and societal practice.

We consider political ecology's incorporation of these principles to be critical. This means going beyond dominant interdisciplinary approaches to involve dynamic, heterogeneous knowledges in project conception, framing, and dissemination. This transforms how research is carried out and how research teams integrate

knowledge across multiple domains, thereby providing innovative insights on entrenched multi-scalar and historically sedimented socio-environmental problems. An outcome of decolonial approaches is thus to enhance collaborative work by providing guidelines on relationship building and responsibility-sharing in the research process across individual and *institutional* actors as well as *within* theoretical paradigms.

3. Decolonial research: features and obstacles

Legacies of colonial research

Decolonial research paradigms address the shortcomings of previous research that attempted to represent Indigenous knowledge systems and co-produce knowledge in team-based science. The mistrust, skepticism, and dissatisfaction felt by Indigenous scholars and communities stems from colonial, bureaucratic, and institutional practices that have oppressed, overlooked, and continued to marginalize Indigenous Peoples through structural and organizational power and racism (Nadasdy 2003; Tuhiwai Smith 2014). Features of colonial work include engagement with the "knowledge base of the dominant group in society", in this case Western science, solely benefiting the researcher and researchers' institutions with little exploration or recognition of power and privilege in the research process (Tuhiwai Smith 2012: 178). Other features can include "dehumanizing" research participants, a "top-down" research design model, and romanticizing local or Indigenous collaborators or participants (Raymond 2007; Wrakberg and Granqvist 2014). Limited consideration of community-relevant outputs and impacts are also a feature of conventional science (Larsen and Johnson 2012; McGuirk and O'Neill 2012; Nicholas and Hollowell 2007; Tuhiwai Smith 1999, 2014; Wrakberg and Granqvist 2014). Finally, scholars of Indigenous and related studies suggest most research can be considered as "violence committed against Indigenous lands, bodies, and memory" (Barker 2017: 17), which has serious implications for building researcher-participant trust, producing reliable and valid research programs, and conceptualizing the future of synergistic science that interweaves Western, Indigenous, local, and other forms of knowledges and ways of being together (e.g. see Tengö *et al.* 2014) .

These feelings of mistrust stem from histories of appropriation and dominance, especially of local and Indigenous knowledges, delegitimization of local and Indigenous Peoples' experiences and rights to those knowledges, failure to adequately co-produce and distribute research results, and "a pervasive racism that underscores all of the above" (Mathews and Turner 2017: 197; Agrawal 1995; Simpson 2014). Cultural insensitivity and ignorance of local and Indigenous knowledge systems and ways of being erase participation and collaboration in the process of research and perpetuate the institutions and structures that silence them (Castleden *et al.* 2012a). Scholars, in engaged research across disciplines, have recognized the critical role of researchers and research institutions and entities in transforming these harmful legacies of practice, building trust within and across researcher-participant and community relationships, as well as improving cultural sensitivity and engagement with local and Indigenous knowledge systems (e.g., see Collings 2014). In this sense, a critical approach to theory is insufficient to address these plural legacies of oppression and multiple, interworkings of power within research designs. Indigenous studies and decolonizing research approaches argue that methodological changes are important but insufficient to create the transformative change necessary (Simpson 2017). Researchers need to recognize and remove themselves when they and their teams are uninvited guests onto Indigenous lands; there are different types of labor (emotional, care-based, academic) that are required for research designs that follow Indigenous protocols. These include the time commitment to build trustful relationships, the ability to de-center academic authority to improve transdisciplinary engagement, legitimizing and mainstreaming acceptance of local and Indigenous knowledge systems and epistemologies, and maintaining cultural and intellectual diversity (for example, see Turnbull 2009).

Features of decolonial research

To promote and maintain cultural and intellectual diversity, decolonial approaches encourage recognizing local and Indigenous values, cosmologies, and frameworks to create new forms of scholarship by formulating research driven by responsibility, respect, and reciprocity (Pualani Louis 2007). This includes going beyond simply adopting principles of practice or collaborative methods, both which remain critical, to also

transform the epistemological foundations of project conceptualization to attend to questions of power, epistemic violence, racism, and social justice. As noted above, co-production dictates that research foments *disciplinary* and *institutional* transformation, for example, building theories that reflect the goals of epistemic sovereignty, self-determination, and Indigenous, collective rights (Haig-Brown 2003; Kovach 2000; Tuhiwai Smith 1999). In the context of Alaska, where our project was based, several examples demonstrate Indigenous-led efforts to reshape science and research, including, the Inuit Circumpolar Council-Alaska's food security work (ICC-Alaska 2015), the Collaboratively Harnessing Indigenous Research Principles, Protocols, and Practices (CHIRP3), an effort led by the First Alaskans Institute's Alaska Native Policy Center and the University of Kansas's Center for Indigenous Research, Science and Technology (CHIRP3 forthcoming), and Kawerak Incorporated's work on research processes and Indigenous communities (Raymond-Yakoubian and Raymond-Yakoubian 2017) (Figure 1).

Figure 1: Indigenous-led efforts to shape the research process in Alaska and the Arctic.

These efforts, alongside others, have established key features of engaging in decolonizing research with local communities, but especially with Indigenous Peoples. The **first** is for non-local researchers to learn local histories and research legacies, to spend the time and effort necessary to establish relationships and understand responsibilities, learn local languages, to learn culturally appropriate conduct, and ethical principles of engagement. Once relationships and trust have been built, and approval given for research processes to proceed, residents and local entities should continue to be partners, as desired, in all decision-making phases of the research project: conceiving, designing, implementing, writing, and reporting of research in partnership with communities (Mullins 2011; Tuhiwai Smith 1999). In practice, this means the research agenda is driven by the concerns and questions relevant to and driven by the appropriate local governing and advisory bodies, while the academic or institutional co-researcher often acts as a facilitator (Mistry *et al.* 2015). Further, the establishment of co-learning and trust-centered relationships that require maintenance beyond the life of the research project is necessary — not just formalized, impersonal partnerships (Castleden *et al.* 2012b). Long-term relationships are critical for ensuring research findings are relevant and responsive to participating communities, and ongoing relationships maintain iterative feedbacks as needed.

A **second** feature of decolonial work entails engaging with practical and conceptual strategies to facilitate shared power and decision-making across all facets of team-based research and not just in substantive components of empirical designs. This can include using creative, accessible means of communication, sharing integrated knowledge, and fighting suppression of non-dominant knowledges and ways of being. This broadly

means questioning and redefining the power relationships and boundaries between researchers and participants (Koster *et al.* 2012) and for researchers to be reflexive about their roles and power dynamics. By "power" we mean who controls the research process, and the institutions in place that perpetuate dominant power structures and forms of privilege. By "reflexivity" we refer to the "constant awareness, assessment, and reassessment by the researcher of the researcher's own contribution/influence/shaping of … research and the consequent research findings" (Salzman 2002: 806). Thus, practitioners of decolonial methodologies strongly advocate dissolving researcher-participant boundaries and transforming institutional structures that maintain conventional power norms. Decolonizing and Indigenous methodologies seek to directly confront the balance of power through engaging in all facets (e.g., conceptualization, planning, creating, processing, analyzing, preserving, access, re-use) of the life of a research project (Blackstock *et al.* 2015; Muhammad *et al.* 2015). Power-sharing and reflexivity throughout the entire research process mitigates research harms and negative impacts through providing structural mechanisms by which participating communities can co-lead the project from the onset.

A **third** feature of this work is considering agency as a dimension of power within and across the research process. Agency refers to the ability of individual participants and communities to pursue their own agendas and fulfill their own needs within the context of a research project (Allen *et al.* 2014). In this vein, an important task of an engaged researcher is to address their own background and biases, and the roles they play in supporting agency in the research process as well as acknowledging the intersectional and heterogenous relationships within the communities they are working with and for, and between communities and researchers (Isler and Corbie-Smith 2012). Decolonizing methodologies suggest Indigenous scholars fill roles as local "knowledge-bridgers" in this part of the research design process, although, if deemed appropriate by communities, this can be filled by non-Indigenous scholars as well. The goal is to facilitate reflexivity within and across the collaborative research team (Christensen 2012; Johnson *et al.* 2016; Satterfield *et al.* 2013). In this way, agency, as one but critical manifestation of power, further assists with checks and balances within the research process through identifying knowledge-bridgers and keeping co-researchers and collaborators reflexively accountable at all phases (Lang 2012).

Obstacles to decolonial research

Although there has been much work to advocate for decolonial research designs, several barriers and constraints impede their adoption within dominant paradigms, such as in the North American context the shared ownership of knowledge produced by Indigenous Peoples, the "publish or perish" dogma in academia, and narrowly defined intellectual spaces (Balazs and Morello-Frosch 2013; Rodriguez 2017). However, some of the more prominent barriers are institutional. Shared ownership of knowledge produced by Indigenous Peoples—for example, in the form of memorandums of understanding, collaborative writing processes, or research contracts—is a goal which most engaged disciplines aim for, yet institutional structures, such as university contracts offices, may not be open to considering how to translate their institutional standards into collaborative agreements (Friedman Ross *et al.* 2010). Shrinking institutional budgets and competitive grant funding environments tend to frame extended, engaged research programs, whether they are collaborative, participatory, or decolonial as excessive, time-consuming, or worse, as frivolous (Friedman Ross *et al.* 2010). Research institutes and Indigenous Peoples have responded to these challenges by, for example, offering guidelines or exercising authority in data sharing, as in the case of the Indigenous Wellness Research Institute's data use agreements or code of ethics and integrity templates.

On a departmental and disciplinary scale, the "publish or perish" dogma (i.e., build up personal or institutional status through publication of peer-reviewed articles and books) that is tied to tenure and promotion processes provides limited spaces for co-authorship to emerge, or sharing results in ways that might have impacts beyond an academic community—although this is changing with new norms in team-based science and transdisciplinary work. Western science and social science norms also dictate timelines that force researchers to produce knowledge in forms that are recognizable by peer communities (e.g., journal articles, written reports, conference presentations) within expected timeframes that often make decolonial research—including establishing relationships, building trust, developing equitable and participatory research designs, and co-generating knowledge—in conflict with institutional structures and "temporal fit" (Armitage *et al.* 2012). Some grants can accommodate re-prioritizing deliverables (e.g., community-driven outcomes achieved before manuscripts are published) and often community outcomes can be described in ways to conform to professional development norms, while at the same time retaining their contributions to peer communities.

Finally, narrowly defined intellectual spaces (e.g., university campuses, professional organizations, symposia) pigeonhole research and force it to conform to existing paradigms rather than providing engagement spaces that might be broadly accessible to project participants or co-production possibilities (Blodgett *et al.* 2011; Castleden *et al.* 2012a). Certain disciplines, such as anthropology, have suggested guidelines for promotion and tenure that include applied work (see Khanna *et al.* 2008). In some spaces, decolonial and Indigenous ways are being attached to success measures, for example, in academic measures of success for Maori scholars in Aotearoa/New Zealand (Sutherland 2018: 149). There are also teaching strategies emerging, for example in Aotearoa, to make sure indigenizing and decolonial principles are used in university settings (Louie *et al.* 2017). Similarly, while political ecologists have been attentive to outward facing forms of public engagement and policy-based scholarship, work could be furthered to change institutional norms to practice a more radical and decolonial political ecology. Here we find an important intervention is to adopt decolonial approaches to political ecological work.

4. Leadership and strength in Utqiaġvik

The project analyzed here is a long-term (currently ten years) collaborative and engaged ethnographic project that set out to understand strength and well-being in times of change, and to focus on the pathways that women, men, and families forged to live well in Utqiaġvik, Alaska. As a research team composed of three non-Indigenous and non-local researchers, one Indigenous non-local researcher, and one local non-Indigenous researcher, we asked in what ways could our work contribute, if at all, to addressing collective well-being? We found decolonial paradigms which prioritized engagement with local Elders, advisors, and project participants as critical to shaping and determining how and in what way we could respond to this question and our resulting practice. Importantly, decolonial paradigms demanded that we consider engagement as central to the work but also be willing to question Western paradigmatic social science *theoretical* frameworks and academic *institutional* practices within which our work was embedded. Without this lens, our work would have yielded collaborative or engaged outputs but would not have achieved the co-production necessary to move toward *transforming* theory, method, and practice in order to cultivated transdisciplinary research teams.

Formulating an engaged research design

The origins of this project began in 2009 and emerged out of conversations that project team members had with local leaders while conducting other work in Utqiaġvik (e.g., Carothers *et al.* 2019; Cotton 2012). This prior research engagement in the community revealed tensions about non-local research and negative legacies of researcher activities. These reflections brought us to a several-year long process of working with local leaders in Utqiaġvik to develop a collaborative project to explore local priorities for research, the stories community members wanted to tell, and if there were appropriate and ethical ways for us as non-Indigenous and non-locals to contribute.

Utqiaġvik is the largest community (4,212 people) and the regional hub of the North Slope region of Alaska, and home to Iñupiaq peoples (60.5% of the community identifies as Alaska Native) (U.S. Census 2010). Leaders we spoke with during our previous research and initial visits to shape this project commented that the longstanding and rich history of men's and women's roles in contributing to Iñupiaq livelihoods were recognized locally, but that these positive stories of leadership needed more attention and amplification outside of the local region for better representation. While some local leaders are well-known outside the region (for example for leadership during the Indigenous land claims struggle, and with political and economic administration of the large North Slope Borough and the Arctic Slope Regional Corporation), everyday leadership, particularly of women, is less visible. Also, advisors discussed that while the multi-generational trauma that persists in Indigenous communities in settler states (see Napoleon 1996 for example) was an important context within which to situate our research, like all research, they directed us to focus on collecting stories of leadership and strength. That is, our community partners wanted us to focus on collecting stories of what makes their community well, not what makes it unwell. Based on these recommendations, we subsequently co-generated project whose focus, scale, and scope were tailored to these community's interests in highlighting stories of leadership and strength across generations, and with external audiences. Initially we also connected these topics to questions about how to support Utqiaġvik-based resilience strategies in response to climate change.

In this process, we learned that what we viewed as an engaged political ecology-focused research design had severe shortcomings with a restricted focus on Western science concepts of sustainability, resilience, and climate change. In addition, it did not always attend to power and privilege within and across research teams, even though this was a key feature of empirical aspects of the work. To confront these shortcomings, we drew further on the theoretical and methodological frames of decolonial research as well as already-established principles and protocols for working with Indigenous Peoples in the Arctic. We continued to work with local leaders who assisted with co-producing this project to identify a set of Iñupiaq advisors who agreed to serve in an advisory capacity for the project. We (the project team with Iñupiaq advisors) developed a set of guiding questions for the work, including:

- How do recent shifts in local livelihoods reshape discourses and practices on what it means to be a leader in changing times?
- What are the linkages between women's and men's leadership and strength and collective well-being?
- To what extent have recent shifts in local livelihoods impacted the ability of women and men to nurture diversity and create opportunities for self-organization and self-determination?

We initially drew upon engaged research approaches through:

1) attending to the research process, especially the way in which was it was embedded in researcher legacies in the region;
2) engaging with project advisors and local research participants from Utqiaġvik to guide, inform, and co-design research;
3) spending time in place and participating in local life;
4) critically evaluating the methodological foundations of this work;
5) recruiting and training graduate students with different identities and backgrounds than our own who would bring diversity to the academic arm of the project team;
6) seeking to co-produce outcomes relevant to the community and the multiple stakeholders involved in the project.

We also anticipated that relationship-building would be central, rather than peripheral to the research. Local participants, advisors, and institutions were part of all phases of the research life cycle and the impacts of the work were carefully considered with research participants and local entities. Furthermore, in the process, we were aware that as we were co-creating the project, we were doing so within Western-initiated research paradigms, although, as described below, we sought to challenge these. And while the topics of the work itself came from the community, the systems in which we were operating, for example, the research design and funding process, was structurally organized to privilege the university-based researchers, and not the local advisors.

As the project unfolded, different ways of knowing and co-producing knowledge became critical, and while we were unable to fully adopt a decolonial research design, which we describe more in detail below, we quickly and deeply integrated some of the features of decolonial practices by directly confronting ontological and epistemological assumptions of work, researcher roles, and institutional constraints. We benefited from ongoing conversations with local leaders but also the guiding literature and practice-based experience coming out of Indigenous-led approaches to promote Indigenous paradigms, to recraft collaborative, community-based work or promoting decolonial research designs (CHIRP3 nd; ICC-Alaska 2015, Raymond-Yakoubian and Raymond-Yakoubian 2017). Finally, we were especially interested in integrating an analysis of power to better approach how more recent and ongoing processes of colonialism, including those embedded in higher education, support or challenge community strength, leadership, and well-being (Figure 2).

Phase 1
• Discussions with community leaders • Identification of project theme • Identification of initial *theories* • Application to funding sources • Time spent in community, talking with people, and learning the landscapes
Phase 2
• Project refinement meetings with community leaders and local institutions • Recruitment of non-Indigenous and Indigenous graduate team members • Creation of local Iñupiaq advisory board • Writing project summary including our funding sources and team personal and professional biographies • Creation of project communication plan, including biannual communication reports to institutional partners and project website easily accessible in low-speed internet environment • Discussions of relevant project output formats • Time spent in community, talking with people, and learning the landscapes
Phase 3
• Commencement of archival research that documented stories of strength in local newspaper, the Arctic Sounder • Piloting interview questions and refining questions based on advisory board feedback • Time spent in community, talking with people, and learning the landscapes • Finalizing an initial report on possible project output formats and gaining feedback from project advisors • Co-participating with local leader in an environmental justice workshop • Disseminating project reports and eliciting ongoing feedback in person and online
Phase 4
• Finalizing interview questions and interviewing recommended participants in the community • Finalizing Arctic Sounder archiving • Adopting Iñupiat Values and Iñupiaq Learning Framework as key theoretical orientations of work • Preliminary creation of mock-ups of digital outputs, including e-book and website • Participation in Iñupiat Values and Land Use Camp • Time spent in community, talking with people, and learning the landscapes • Disseminating project reports and eliciting ongoing feedback in person and online
Phase 5
• Transcript review and follow-up with project participants • Preliminary review of interviews and feedback for theme selection • Selection of report and website as final products with relevant multimedia components, partnering with local institutions on photo selection, translation of key quotes into Iñupiaq, and finalization of key areas to represent • Disseminating project reports and eliciting ongoing feedback in person and online
Phase 6
• Depositing transcripts at the Iñupiaq Heritage Center • Depositing story archive and database at the local library • Finalizing and publishing website and related productions • Development of other publications
Phase 7 (ongoing relationships)
• Maintaining personal and community relations (lifelong) • Recruiting of Inupiaq and other Indigenous students into degree programs and research • Hosting co-production workshop Utqiaġvik with Indigenous partners (2021) • Continued work on institutional change • Working with partners to identify new spaces for future collaborations

Figure 2: Project design and phases.

Research itself was a topic of considerable discussion. One of the most important things we learned from the community of Utqiaġvik was a reflection on outside researchers. As non-Indigenous and Indigenous researchers from two non-local universities, we repeatedly heard general critiques about the research process as tied to colonialism; a finding which also resonates strongly in the decolonial and engaged research literature (Tuhiwai Smith 1999, 2014). Community members shared stories of unethical scientists, agency censorship, and mistreatment and exploitation of local people (e.g., see Foulks 1989). We also learned about historical legacies in the community that were sources of trauma, such as boarding school experiences, prohibition of spiritually central singing, dancing, and drumming, and restrictions on or prohibition of subsistence activities (e.g., the "Duck In" of 1961, International Whaling Commission restrictions in the 1970s), Western-propertied notions of land, medical testing without consent, huge changes that accompanied oil and gas development and extraction, and general regulatory and bureaucratic governance of their lands and peoples that have challenged local communities and institutions (e.g., see Barnhardt and Kawagley 2010; Hensley 2009; Napoleon 1996). These historical and ongoing challenges were disruptive to many community members, and in many ways, research was, and continues to be part of, this extractive landscape of trauma. For example, two participants explained:

> But there's a lot of, the past traumas with our community with the boarding schools and the people having to move away from their communities to go to the boarding schools, losing their language, not being able to speak their language because of having to move away and coming back and not feeling part of their community because they were away from their community and coming back and feeling as an outsider because they weren't part of their community. And all of the Alaska Native traumas from the BIA [Bureau of Indian Affairs] days. So that's some of the historical traumas of the general Alaska, some of what Alaska Natives have had to deal with. And they are continually healing with that, that piece.

> Cause right now I think we're in a state where we still, we're still functioning through colonized brains and minds. That to me, is real critical and at this point in our history, I think we're moving towards getting beyond that hump through acknowledgement of our past, of our history, through acknowledging that we indeed have the answers within ourselves and can make decisions on our own rather than thinking in terms of, through the lenses of dependence on the government, or whoever, in order to be able to function as communities, as a society. Yeah, and it's not necessarily a men or a women thing, it's a people thing.

We not only became more aware of the historical legacies of researcher-community relationships but also initiatives, such as the North Slope Science Initiative and the Western-Indigenous science partnerships at the North Slope Borough, that sought to break down the barriers between researchers and community members and move toward knowledge co-production. As we were told of the traumatic and more recent positive legacies of research in the community, we were directed to make several additional considerations to the research design, including to be clear about who we were (beyond our professional titles) and why we were committed to conducting research in Utqiaġvik, our funding sources, and to prioritize community-relevant outputs in addition to standard academic reports and publications. Moreover, resources for travel for project team members to Utqiaġvik were substantial; and this project would benefit the residents of Utqiaġvik more directly if we were able to allocate more of those resources to project advisors, participants, and outputs.

Moreover, decolonizing research programs that honored Iñupiat values and cosmologies were promising for healing and future well-being. As a result, to formulate work that supported relationship-building and addressed previous injustices, we increasingly drew upon decolonial research designs, specifically participatory, Indigenous feminist, and critical feminist frameworks (Goeman and Denetdale 2009; Leach 1992, 1994) to address the concerns that were raised by the community about the procedural and substantive aspects

of this work. For example, the community was concerned that while the research focus on leadership and strength was beneficial, leaders we spoke with were worried that research results would not be accessible to residents or relevant to their youth. Other project members we consulted with wanted regular communication lines open in order to make sure open and continuous dialogue was taking place.

Part of our transdisciplinary work thus included engaging with various institutions and entities in the village for formal or informal endorsements, co-production and design, as well as for ongoing communication, feedback and advice. The Native Village of Barrow Iñupiat Traditional Government, Iñupiat Community of the Arctic Slope (ICAS), and the North Slope Borough (NSB) provide regional or tribal governance oversight of research projects in the area. We spoke with each of these entities but worked the most closely with the Native Village of Barrow Iñupiat Traditional Government. We received endorsements from important organizations in the community, such as the Barrow Whaling Captain's Association and the Alaska Eskimo Whaling Commission. The North Slope Borough (NSB) Department of Wildlife Management has been a model of employing Alaska Native and American Indian and non-Indigenous researchers to implement and carry out wildlife and natural resource management initiatives and research on the North Slope, and we talked with their staff throughout this process, although we did not have a formal affiliation with the office. Furthermore, the Iñupiat Language and Heritage Commission (IHLC) has long supervised and supported humanistic and social science projects focused on cultural heritage and other efforts, and we actively presented at and engaged with members of the IHLC throughout all phases of the project.

Utqiaġvik also currently hosts the only tribal college in Alaska, Iḷisaġvik College. The North Slope Borough K-12 educational system headquarters is in Utqiaġvik, and it integrated the Inupiaq Learning Framework (ILF) into its K-12 curriculum in 2010 (Figure 3, also see Figure 4 for Our Iñupiat Values). We regularly reached out to these two institutions and engaged with the ILF as we co-developed the project, interview questions, and co-designed outputs. The ILF encompasses different components of the Iñupiaq world, as Rainey Nasġraq Hopson notes: "The Environment, the Community, History, and Individual—pieces in the blanket that are needed to carry and elevate an individual to success" (Hopson, quoted in Harcharek and Rexford 2015: 22). The goal of the framework is for the "reader and teachers [to] understand how the Iñupiat 'come to know' in order to grasp the complexity of the ILF, understand the reference points in which the knowledge is rooted, and philosophically align teaching and learning to the Iñupiat worldview" (Harcharek and Rexford 2015: 17). These local insights and support from working with these institutions and the ILF program assisted in answering some larger questions that Arctic researchers are interested in, such as the well-being of Alaska Native Peoples, and it also answered questions relevant to the community about highlighting stories of strength and leadership, in a context where research and dominant narratives about their peoples and communities often position the communities as victims of change or in need of adaptation without first examining broader historical or structural issues that have impacted the community. With each of these entities we attended meetings, provided biannual reports on research progress, and met with key individuals in these institutions during the pre-planning, research, and post-research phases of the project. We spoke with these partners about community-relevant outputs to integrate decolonial research.

Many leaders within the organizations we consulted with talked about how sharing research reports, while appreciated and critical, did little for their interest in engaging youth or different generations in the research process. For example, one participant shared:

> The youth are the most important asset a family has. If they're not trained properly, they will not succeed in the Iñupiaq way of life. You know, they might not succeed that way but they can succeed in another way. Because we're ever evolving. We're getting so culturalized, we're so Westernized. It's not a bad thing. It's—to a certain extent of your knowledge it is a good thing. It hurts, but it is a good thing. And realistically, if the world was to come to some culture kind of a stop, people that have the knowledge of the Iñupiaq way of life will survive.

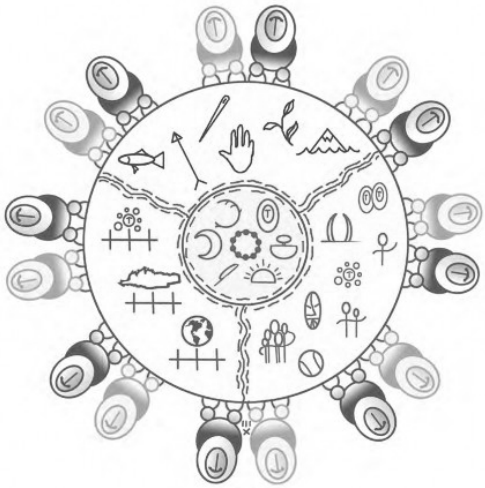

Figure 3. The Iñupiaq Learning Framework.
Image Source: https://www.locallearningnetwork.org/journal-of-folklore-and-education/current-and-past-issues/jfe-vol-5-2018/journal-of-folklore-and-education-volume-5-issue-1/supporting-inupiaq-arts-and-education

Based then on local input and the wide range of programs and efforts already in the area that were proposed, documentary films, interactive e-books or magazines, a dynamic or static website, multimedia blogs, radio shows, and curricular materials, we initially sought to pursue a documentary film as one of the outputs. However, we failed to secure funding and through discussions, later identified a website as the best platform to highlight stories of strength, leadership, and healing. For example, participants continually reaffirmed the importance of creating different spaces for engagement:

> My father, he always told me to pass on what I know and what I have learned. So that (younger people) can know how to scrape the skins to make them into mukluks. Or the other day, someone put on Facebook, "I wanna make my parka into a packing parka, what do I do?" I was going to answer but some else did already. You just add onto the sides. And so, so to me, what I have learned from my mother and father and some uncles you have to pass them on and that way my grandchildren can know how to do it if and when I pass.

The website was cited by many of our advisors as serving a similar function – a digital repository where educators in the K-12 North Slope Borough of Education System could consult and also a site that celebrates the pride and strength of the community. Engaged research, thus, can fall short if it doesn't involve decolonializing approach, particularly outputs that connect with institutional change.

Figure 4: Our Iñupiat Values. Image Source: http://www.north-slope.org/your-government/mayors-office/healthy-communities-initiative

5. Producing engaged research

As we followed the protocol for decolonized collaboration and shared agency in the research process, we sought to better address time burdens and provide compensation, monetary or otherwise that respected local social organization and expectations. Compensation structures were set up in consultation with local advisors to be appropriate for the time spent working with the project team. As a response to these initial phases, which took place over three years, we finalized a project team composed of local Iñupiaq advisors who provided critical feedback on the project as it progressed. The advisors, who represented different generations in the community, mostly identified as Elders, and had a range of formal and informal positions within the community. The advisors we consulted were very busy either engaging in professional work, care work, subsistence work or a combination of all three. This gave us even more reason to co-design a research topic that was of relevance and interest to the leaders and community, yet generated questions for us about the burden/benefit of researchers in communities. We also sought to financially compensate them for their time spent on the project, to address the time burdens of the work. Although we had secured funds for this, local norms and duty overlap meant most of our advisors did not accept compensation due to their professional positions. Moreover, while we initially imagined that this advisory team would meet as a group, project advisors preferred to advise us individually on a one on one basis as well as to remain anonymous. Thus, advisors gave us feedback on all phases of the research design, including recommendations for project participants, piloting and refinement of research questions and project reports, and feedback on community outputs. Finally, we built a research team composed of two graduate students, one from each participant institution, with cultural backgrounds different than our own (Iñupiaq and Asian American) and sought to engage local research assistants (one local non-Iñupiaq resident

became a member of our research team). Through this process, research team members' intersectional identities were amplified differently, depending on the context in which we found ourselves.

Ultimately, we relied on participant observation and semi-directed interviews as a final research protocol (Suri 2011). Arriving at these methods also highlighted the need to build in protocols to address the emotions and traumatic memories that may arise. We conducted semi-directed interviews with knowledgeable women and men from different generations to explore the domains of leadership, strength, healing, and change. We initially had a twenty-two-question semi-structured interview that covered the domains of everyday practices, work histories, educational histories, subsistence engagement, and attitudes about challenges, changes, and benefits to the community, which we framed as part of a feminist political ecology framework. We saw it as intersecting with sustainability science and resilience literature. From the feedback from project advisors, we reduced the questions to ten, with greater engagement the ILF's approach to knowing, specifically drawing upon themes in the ILF "quilt" to focus on leadership, strength, and healing rather than resilience and sustainability. For example, we fine-tuned our challenges questions to ask about what makes the participant proud about the community and what things are especially important to community life. We also did not anticipate the emotional and difficult nature of conversations around strength and healing that occurred. This prompted us to educate our research team in how to best support participants during hard moments of interviews, how to give participants space to pause or stop the interview, and how to address the emotional imprints left long after the interview had ended. It also drove home the emotional legacies of research with communities.

In-depth interviews provided a substantive corpus of stories about local lives, which is fundamental to understanding women's and men's perspectives and practices regarding well-being. We also worked with a small subset of women who were willing to share their stories with us over multiple conversations and gave us permission to participate in some of their daily activities (Schneider 2002). Simultaneously, we sought to identify previous stories of leadership and strength in locally-relevant media outputs. We worked with the local Tuzzy Library to identify these stories from print and digital copies of the local newspaper, *The Arctic Sounder*. As only a portion of the newspaper was digital, this media analysis sought to further highlight stories of strength by generating a digital archive of *Arctic Sounder* stories since its inception.

The guidance of project advisors, with whom we regularly maintained contact, provided iterative feedback on all stages of the project. Following decolonized protocols and the primacy given to the agency of local people, we completed 32 formal interviews with 31 research participants. We conducted a multiple stage follow-up process with participants so they had an opportunity to review, edit, and finalize their transcripts, and to prepare the transcripts and audio for submission to the Iñupiat Heritage Center, which is part of the IHLC. Relevant to the processual aspects of our design, we received feedback from local participants stating that our previous engagements with the community have provided an important space for women and men to gather and discuss their concerns. We have also provided information for several local organizations and other institutions interested in documenting women's and men's contributions to maintaining community values and well-being. We archived audio files and interview transcripts with the Iñupiat Heritage Center for local and public access (for those participants who wanted to archive their materials).

As research unfolded, as relevant to decolonizing approaches, we prioritized the completion of community project outputs, including a website with highlights of our results and links to further resources; a final project report, written for the community; archives of interviews at the Iñupiat Heritage Center; and the database of leadership and strength stories from *The Arctic Sounder*. In this way, we hoped that the results of the work would reach a wide variety of audiences, which was a main goal of the community, and that the process of research would invite collaboration at all phases of the project. We also hoped that the decision to incorporate the ILF in our research framework would enable the team to theoretically and methodologically ask questions about building transdisciplinary partnership and the associated co-production of knowledge, relationship building within decolonial research contexts, and questions about power within the research team.

6. Discussion

During the project, many challenges to integrating a decolonial research design within a political ecology framework surfaced. One of the most pronounced was the limitations of prominent paradigms in the environmental social sciences in not just addressing the substantive aspects of power and equity in the research process, but to extend that lens to epistemic norms, research teams, and institutional contexts (e.g. political ecology, sustainability science, resilience, and socio-ecological systems). Political ecology, resilience approaches, and sustainability science were questioned by local leaders who saw these paradigms as limitations to co-producing knowledge in *transdisciplinary* contexts. This manifested directly when project advisors and local leaders evaluated the normative assumptions of dominant frameworks and paradigms that positioned their peoples and communities without drawing attention to underlying structural considerations. For example, some highlighted that living well and healing are key to community life but they were concerned with how and in what way these were prioritized in a resilience framework that may not account for historical legacies of settler colonialism. Or in political ecological work that might consider their desires for well-being as another discursive strategy rather than as a fundamental difference in epistemologies. For example, here are two responses from participants that highlight stories of strength and ongoing commitments to local worldviews for future-making, instead of reliance on Western-derived notions of resilience or sustainability, that can overlook colonial histories and present-day practices:

> That we can stand up. And that we can make our own decisions. We have the answers within us. It's reclaiming that, that is inside and being able to do that makes me most, I mean it's so humbling at the same time. I don't know if the word proud does it…It just exudes this goodness. Not pride, this arrogant stuff, but these feelings of good, goodness.

> The value of our way of life is going to be a mainstay for the generations to come, regardless of what happens. The unity it gives to each village is beyond many, many places in the world and it's not something that can come from anywhere. It has to come from us.

Based on this feedback we combined engaged and decolonial methods with decolonial approaches to our theoretical framework that adjust for these concerns. We were able to highlight and approach those topics that were key to the community long-term survival and get these stories out to a wider audience via the website and newspaper. Had such a decolonized approach not been taken, the project would have continued to use more mainstream frameworks without adjustment, such as political ecology and resilience theory, to better understand the social and cultural factors of leadership and strength (Berkes 2004). Originally, in focusing on underrepresented social and cultural factors of resilience, we hoped to co-create community-relevant materials for local heritage and curriculum building initiatives.

As project participants questioned these dominant understandings of resilience they encouraged us to engage more explicitly with Indigenous paradigms and Indigenous scholars to frame the project, including those within the community, such as the work of Battiste (2011), Battiste and Youngblood (2000) and Harcharek and Rexford (2015). Community members also directed us to consider the normative and moral dimensions of these same frameworks—which do not adequately recognize unjust historical contexts, embody Iñupiat worldviews, or promote equitable outcomes (see Cote and Nightingale 2012, Ingalls and Stedman 2016). Thus, for many participants, the initial framing of the work as connected to resilience were entrenched in Western science. Instead, many community members noted Iñupiat Values and the Iñupiaq Learning Framework are more appropriate ways to approach the questions we were asking, thus challenging our participatory design to interface with Indigenous norms of practice, methodologically but substantively. We turned to decolonial frameworks and extended our political ecology approaches to power to guide us as we started to work with the ILF as per our participant and advisor suggestions. For example, one participant stressed the role of the ILF in thinking through Elder-youth interactions and its role in the school curriculum:

> And so it really causes me to wonder how the role of the Elders is going to be perceived…So I'm trying to think, 'what is my role going to be as an Elder?'…We have in the Iñupiaq Learning Framework, we honor our Elders and we have performance expectations that relate to the Elders and having respect for them. We're working with kids to have them thinking about what the role of the Elder is. And so I'm feeling like hope is not lost because at least in the curriculum work that we're doing, we're acknowledging that we have to thinking about that, elderhood. We'll see where we are in 10 or 20 years.

Toward the end of this work, even the lens of gender became questioned, as one Iñupiaq leader shared that in an Iñupiaq worldview and language (with no gender pronouns) this frame may not be the most appropriate. She suggested that researchers at the very outset of a research question or a project be very careful not to offer framing ideas or concepts, but rather discuss with local leaders the best way to approach questions of interest, and local people can help supply the framework that best works with those questions. Participants stressed that cultural continuity, honoring different generations, and supporting family and community are preferred pathways to self-determined futures, instead of "sustainable" or "resilient" ones based on Western notions of sustainability or resilience that were built without engaging with Indigenous paradigms.

In alignment with the decolonial research literature encompassing institutional change where it is necessary for more inclusive research practices, project participants also commented on the incongruity between academic timelines and local ones. They also highlighted weaknesses in adopting conventional environmental social science frameworks, such as political ecology, without examining new theory-building possibilities or privilege operation within research teams. These comments strongly resonated with decolonial and engaged research literature, and we also found severe institutional constraints to this work that affected our relationship-building, especially connected to mismatched spatio-temporal dimensions of practice. We repeatedly heard discussions of participant burden and research fatigue among participants. In collaborative work where participants are asked to be heavily involved in all phases of a research project, especially ones carried out in the summer months dominated by harvest activities and an increased intensity in community life and work (e.g., whaling festivities), these burdens seemed particularly high. Because of our commitments to our home institutions of higher education (classes during the academic year) and funding, we were unable to spend considerable amounts of time in the community outside of the summer months, although we made short trips during the fall, spring, and winter months. One solution to this is to creatively work within, or advocate for shifting, institutional structures and funding calls so that spatial and temporal fits can be better aligned with local and Indigenous community needs.

Since the project started in 2009, minimally, we maintained a presence in Utqiaġvik each year to the close of formal data collection in 2017 and we also sought to foster and maintain relationships through submitted reports, phone calls, e-mail communication, and opportunistic visits. The graduate students on our team could spend more time in Utqiaġvik and enjoyed two summer stays as well as per an advisor's recommendation, participation in the Iḷisaġvik College's Land Use and Values Camp. However, the institutional constraints of such work also demand that non-local researchers consider the role they take in a research project and the extent to which they carry out work in areas where they have had sustained but limited engagement.

This raises important questions about integration of decolonial approaches into political ecology frameworks. In the engagement literature there are several examples of ways in which research team members can take on different roles to support community goals, which do align with political ecology. For example, researchers can take on the role of a facilitator, allied other, knowledge-bridger, or broker in the research process (Christensen 2012; Johnson *et al.* 2016; Satterfield *et al.* 2013). These roles point to a shift in how academic researchers consider themselves, far from the "expert" that seeks to provide "services" to the community; instead academic researchers and research teams can take on roles that contribute to broader academic, institutional and paradigmatic changes and seek to develop processes that continue to enhance the capacities and capabilities of all involved in the research process. One important lesson revealed to us in this project, was the deep importance of including local Indigenous youth as part of our project. While we made attempts to do so, we were ultimately unsuccessful. Making this a priority for future research designs is one way of addressing this in future work.

Our team was deeply strengthened by the inclusion of an Iñupiaq graduate student. As the next generation of Indigenous scholars are trained in Indigenous or Western institutions and continue to take lead of research processes, then the real shifts to the Indigenous-led visions of decolonial scholarship take hold (e.g., Tuhiwai-Smith 2014; Wilson 2008). In addition to considering new substantive formulations of the project, we also had to identify the institutional constraints that prevented us from completely addressing perceived and actual incongruities between different temporal cycles.

We sought to address questions of power and agency to transform practice at institutions of higher education and in the broader public, and here there were integrative possibilities for how a political ecological framework attentive to asymmetrical power relationships could guide praxis. We shared insights and scholarship from community members in different policy and academic spaces. We worked with community members to participate in relevant workshops, for example environmental justice and resource co-management workshops held at our local institutions and at the 2016 World Conservation Congress to help break down community-academic barriers. Some of the issues that were voiced at this event by community members talked about the distributional, procedural, and recognitional challenges to obtain justice and see positive change. On a more intimate scale, the selected semi-structured interview format provided an interactive space for interviewees to guide the direction that their response would take, and participants could answer or expand on whichever portion of the interview seemed the most relevant and appropriate. Moreover, the research questions themselves were suggested by local community member reviewers.

Throughout this process, we identified ways in which an integrated political ecology and decolonial research design can support efforts for self-determination, and question power relationships within a research team. and, while highlighting. Key hurdles in integrating collaborative and decolonizing approaches included institutional and epistemological barriers. Although we implemented a decolonized research design in the project and sought to integrate theoretical insights from decolonial research, we quickly learned how some of these were off-balance with community perspectives, drawing attention to further barriers in fully adopting decolonial paradigms (e.g., Tuck and Yang 2012). Yet, had this reflexivity and shift to a decolonial paradigm not occurred, we would have ended up unintentionally emphasizing or theoretically framing the results in ways that moved away from, rather than supported, the Indigenous communities' objectives. Nevertheless, institutional barriers and funding constraints make it difficult to align engaged research designs with decolonial methodologies, suggesting that one of the main streams of investment in transdisciplinary approaches is continuing to develop team-based compositions that include more than academic partners.

7. Conclusion

Environmental social science researchers and political ecologists can play a role in adopting decolonial theorizing and practice, to facilitate the co-production of transdisciplinary research that addresses how to sustain well-being and self-determination for future generations. In this article, we have emphasized that carrying out decolonial research designs are distinct from other forms of engaged research and are an important future direction in the environmental social sciences. While political ecologists have been slow to pick up decolonial paradigms, the core focus on power in political ecology as well as longstanding engagement with non-Western and more-than-human knowledges makes the attributes of this framework potentially compatible with determining integrative possibilities with decolonial frameworks.

One of the major challenges in doing this type of work for non-Indigenous scholars is foremost a willingness to recognize *power* in the research process; this necessitates an acknowledgment of adopting approaches that recognize indigenous knowledges, and requires addressing how to co-produce, cross-fertilize, or integrate these diverse forms of practicing scholarship (*theory* and methodology) (Eigenbrode *et al.* 2007). Engaged scholarship is often described as addressing the ontological, epistemological, and philosophical dimensions of producing and co-producing knowledge (Moon and Blackman 2014). Researchers and institutions of higher education can uphold dominant discourses; they also are key to disrupting normative agendas and forging transitional discourses of change (Holley *et al.* 2013). There is also the potential pitfall of co-production if it only reproduces the dominance of Western-initiated research paradigms and works against the goals of Indigenous-produced and driven research and Indigenous knowledge systems, which exist outside

of any form of Western-derived paradigms. With that said, our work highlights how political ecologists can integrate a more decolonized research approach, and the changes needed at the level of research programs as well as in institutional and funding contexts to increase recognition and participation of decolonial approaches in the social sciences.

Despite obstacles, this research revealed substantial benefits of political ecologists engaging with decolonized research paradigms. Decolonial approaches deepened our transdisciplinary research practice through expanding our research team's collaborators and partners, who range from local educational institutions to an Iñupiaq advisory board. Collaborators and partners represented different intersectional knowledges in the community and contributed to determining the shape and content of final outputs. We went beyond dominant interdisciplinary paradigms in the environmental social sciences to involve dynamic, heterogeneous knowledges in project conception, framing, and dissemination, including integrating Iñupiat Values and the ILF as mutually constitutive components of the research. We thus integrated local values and frameworks in both the processual and epistemological aspects of the work, for example through changing our interview protocol and refining the theories used in the project.

Through our work with the Native Village of Barrow Iñupiat Traditional Government and ILHC, we enhanced the relational aspects of responsible and respectful research through following local, professional, and internationally set guidelines on collaborative and participatory work with Arctic and Indigenous Peoples. In our attention to the barriers of research as well as the outcomes of the research process, we were attuned to questions of power in methodological and substantive components of the research. Conversations with local participants and advisors led to redesigns that focused project questions around well-being. They also enriched interpretative findings and results, through iterative dialogues throughout all phases of the research process. These conversations drew our attention to colonial legacies, for example, which are not often included in political ecology studies that do not incorporate a critical or decolonizing approach to research. This has driven home the point that engaging with decolonizing principles can build on environmental social science work, and that paying attention to colonial legacies can more holistically address socio-environmental past, present, and future change. Indigenous and non-Indigenous researchers can achieve this by serving in a variety of roles: facilitator, allied other, knowledge-bridger, and broker.

As noted above, our work resulted in a website that featured key themes highlighted by community members that represented stories of leadership, strength, and healing. The website also featured links about responsible research with northern communities and a video, made in consultation with the local communities, on best practices for how to engage in research with Utiagvik in particular (www.leadershipandstrength.org). We worked with the IHLC deposit transcripts at the local heritage center, where center employees can give access to community members, especially youth to read and engage with in the future. The Tuzzy Library received a digital archive and database of all the *Arctic Sounder* stories that highlighted features of leadership and strength. We worked with the North Slope Borough School District to share the resources with their main program directors, to integrate them as they saw fit into future curriculum. We were able to invite community members to participate in an environmental justice forum at a large midwestern University in 2014 and to be heard at the 2016 World Conservation Congress. We worked with our team to identify spaces where we could transform future researcher and institutional practices and within our team to promote decolonial approaches to political ecology. Finally, in addition to the biannual updates (see www.leadershipandstrength.org) about our project, project partners received final reports of all of our work.

Decolonial research, thus challenges political ecologists to also rethink the *scales of practices*, including scales of broader impact, both geographically and temporally. Decolonial research also demands that political ecologists are attentive to legacies of settler colonialism and negative research-community relationships. Researchers need to consider not only other research and policy communities but also how, in what way, and in what form this information can be accessed by local community members and rights-holders. As one participant described the future: "The value of our way of life is going to be a mainstay for the generations to come, regardless of what happens." In certain cases, engaged research has led to an expectation of advocacy (i.e., speaking up for marginalized groups) or activism (i.e., active confrontation with injustice and human suffering) in research practices (Kirsch 2010; Loperena 2016; Low and Merry 2010). While advocacy and activism are critical to engaged research, in practice, there must be more attention to these stances. Teams

should address the types and kinds of advocacy and activist stances and how team research positions intersect with individual researcher or community activist and advocacy expectations and goals (Campbell 2005). We extend this imperative to environmental social science research practices within decolonial paradigms.

Finally, one of the main goals of decolonial research is to support research with, by, and for Indigenous Peoples. Viewing and practicing research as an ongoing process is necessary to progress toward equality among research partners, create space for plural ways of knowing, and have mutually agreed-upon motivations, goals, and outcomes (Friedman Ross *et al.* 2010; Mulrennan *et al.* 2012). Further, for practitioners of decolonizing methodologies, there exists a parallel progression towards research that promotes self-determination and returns ownership of knowledge to Indigenous communities, while building meaningful, long-lasting relationships between co-researchers (Agrawal and Gibson 1999; Davis and Ruddle 2010; Tuhiwai Smith 2014). Much can be done here in terms of co-production of research as well as co-curation of research outputs. Dismantling the exoticism and problematization of Indigenous communities is a focal activity of decolonizing methodologies to address the shortcomings of research programs (Tuhiwai Smith 1999). In this vein, we follow the literature to reiterate the importance of building institutional capacity in spaces of higher education to engage with Indigenous knowledge holders, scientists, practitioners, and sovereign rights-holders.

Where is engaged political ecology research leading? It does not appear that the literature establishes an endpoint for how political ecology can best connect with decolonial research endeavors. However, prior studies do suggest that the consequences and impacts of research results need to be taken into consideration both at the level of institutional and disciplinary ethics, but also in engaging in transformative practice that shifts institutional and theoretical epistemic norms (Brunger and Russell 2015). Through integrating the above suggestions within and across political ecology work, we hope adopting a commitment to knowledge integration and addressing power within and across theoretical paradigms and institutional structures will become the new norm. Especially as team-based science/s and environmental social science adopt more engaged practices and continue to improve co-production with Indigenous scientists, subsistence practitioners, agencies,, and sovereign members of tribal communities.

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