How Relations Come to Matter: A Study of the Role of Relations for Deliberate Transformations in an Alaska Native Community

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Are transformations accidental or deliberate? To some extent, it feels quite accidental how I ended up being here, doing this work, writing these words. Chance meetings, random choices, lucky strikes. The randomness with which I came to Alaska as an exchange student, an experience that forever changed my life. The impulsive pick of a community development course, in which I learned about the community of Igiugig and the incredible people who live there. The chance meeting of a young man on a glacier and the flourishing of love that followed. The subsequent decision to come back to Alaska in pursue of a relationship and a master's degree. The serendipitous encounter with the Igiugig Village Council President which inspired me to propose a collaboration. How, years later, love led me to Norway, where a job interview turned into a PhD application. And where, through the compassion and vision of my supervisor, all threads that had run through my life seemed to converge. Where I saw a possibility to return to my collaboration with Igiugig and deepen existing relations.

While appearing to be random, throughout this journey I have been deliberate in my pursuit of creating, understanding and honoring relations. Relations to humans and nonhumans, to places and ideas, as well as to myself. Deliberate in this context does by no means equate control or an ability to see the full picture. Rather, engaging deliberately with(in) relations has meant identifying the values central to me and seeing the possibilities for each relation to express those values – values of love and equity. That it ended with a doctorate degree in human geography was not a given, yet the potential was there. While I do take credit and responsibility for this work – for I surely have put these words to paper – to a large extent it is the result of the unfolding of relations. Relations for which I am most grateful.

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I dedicate this dissertation to the people of Igiugig, past-present-future.

ABSTRACT

This dissertation is about how relations come to matter for deliberate transformation towards sustainability. More specifically, it is about transformative change in a community context and how certain relations and perceptions of relations help and hinder this work. The dissertation presents a transdisciplinary study situated within transformations research and anchored in human geography and Indigenous studies. It responds to the growing concern that while the need for transformative change is becoming increasingly evident, it is less clear how to move society towards sustainability in ways that are both equitable and just. Grounded in 'the relational turn' within the humanities and social sciences, the research takes a 'deep' relational approach to the study of relations for deliberate transformations, engaging with Indigenous and posthumanist ontologies that center on the potentials and responsibilities inherent in a world of relations.

Based on a case study with the Alaska Native community of Igiugig in southwestern Alaska, the dissertation offers four insights: 1) that relations matter for how individuals and collectives are able to participate in sustainability transformations; 2) that a 'right relations' approach to relations grounded in decolonial thinking can help ensure that transformations are just and equitable; 3) that a 'deep relational' approach to transformations can help transcend dualisms of individual/collective and local/global, which provides a deeper sense of individual and collective agency for transformations and bridges the perceived divide between local change and systems change; 4) that bridges across ontologies and knowledge systems can and must be built respectfully to enable actionable knowledge for the theory and practice of transformation.

These insights have important implications for the fields of adaptation, transformation and sustainability. Rather than only focusing on *what* needs changing, the above insights speak to *the manner* in which we must engage with transformative change to ensure processes and outcomes that are just and equitable. Within the context of increasing social-environmental challenges, we must practice our ability to hold complexity; to reflect on and refine our understandings, while simultaneously moving ahead with our engagements with change. Based on a 'deep' relational approach to deliberate transformations in Igiugig, Alaska, the dissertation supports this ongoing work.

LIST OF ARTICLES

1. Gram-Hanssen, Irmelin. (2018). Leaving, Staying or Belonging: Exploring the Relationship Between Formal Education, Youth Mobility and Community Resilience in Rural Alaska. *Polar Geography* 41, 1:1-25. DOI: 10.1080/1088937X.2017.1414083

2. Gram-Hanssen, Irmelin. (2019). The Role of Flexibility in Enabling Transformational Social Change: Perspectives from an Indigenous Community Using Q-Methodology. *Geoforum* 100, 10-20. DOI: 10.1016/j.geoforum.2019.02.001

3. Gram-Hanssen, Irmelin. (2021). Individual and Collective Leadership for Deliberate Transformations: Insights from Indigenous Leadership. *Leadership* 17, 5: 519-541. DOI: 10.1177/1742715021996486

4. Gram-Hanssen, Irmelin. (Under Review). From Scaling to Relating: Quality of Relations Matter for Generating Transformative Systems Change. *Annals of the American Association of Geographers*.

5. Gram-Hanssen, Irmelin, Schafenacker, Nicole, and Bentz, Julia. (2021). Decolonizing Transformations Through 'Right Relations.' *Sustainability Science*, 1-13. DOI: 10.1007/s11625-021-00960-9

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1. INTRODUCTION

1.1. Small but Mighty

"Yes, we're miniscule, but I don't care how small we are, we're our own nation—Small but Mighty!" These words were uttered by the Village Council President of the Alaska Native village of Igiugig in southwestern Alaska in response to the common perception that a rural village of 70 inhabitants is too small "*to make big things happen.*" The notion of being 'Small but Mighty' has come up on several occasions during my decade-long engagement with the community of Igiugig. It is used explicitly as a school slogan to enhance the school children's sense of agency by instilling in them the feeling that *"even if they're a small school they can still do great things."* But more importantly, it is also an expression of an underlying logic that informs much of their community work: *"a mentality that we can do whatever we choose to do."*

This claim is supported by the extensive portfolio of the community's sustainability efforts, including creating a local economy that employs residents while ensuring sustainable stewardship of the surrounding lands and waters, transitioning to renewable and community-controlled energy systems, and enhancing cultural integrity through language learning, culturally sensitive school curricula and the protection and stewardship of cultural sites. These efforts are *transformative* in that they create an altogether different trajectory for the village than what has otherwise been imposed through the process of colonization, with its oppressive policies and practices aimed at erasing Alaska Native ways of knowing and being. The current trajectory of the community is one of enhancing the self-determination, autonomy and self-sufficiency of the community while ensuring the wellbeing of people, land and waters, both now and into the future.

Although these transformative efforts are specific to Igiugig, community members find that this capacity exists in all small communities; that *"other villages can do the same thing."* Yet, despite this potential, it seems that not all communities (or organizations or nations) are working from a logic of being 'Small but Mighty'. Similarly, not all who work from this sense of 'mightiness' necessarily generate outcomes that align with the vision of a sustainable future in which people and the planet may thrive. On the contrary, 'might' is often used for individual gain and/or oppressive purposes. What then, enables this 'small' community to use their 'might' to generate transformative change that supports sustainability?

Through my collaboration with the community, I have come to understand Igiugig's version of being 'Small but Mighty' as centered on relations and a particular understanding of the potentials and responsibilities involved when being 'in relation'. Through the past five years, I have worked to gain a

deeper understanding of what characterizes these relations, including community members' perceptions of them. This dissertation presents the results from this work, including an analysis of what these insights mean for understandings of how to collectively and deliberately create transformative change for the benefit of people and the planet.

1.2 A Relational Approach to Sustainability Transformations

The dissertation takes a 'deep' relational approach to studying deliberate transformations toward sustainability. The work is situated within transformations research, an emergent and transdisciplinary field of study centered in sustainability science (Wittmayer et al., 2018). This field is concerned with how to understand and respond to current and future social-ecological challenges, such as climate change, biodiversity loss and socioeconomic inequality, in ways that address the root causes of such challenges (O'Brien, 2021a; Salomaa and Juhola, 2020; Scoones et al., 2020; Stirling, 2015). It is increasingly argued that these challenges, besides being social, political and cultural, are also fundamentally relational; they are the result of certain ways that human societies are in relation to their environments and the global climate (O'Brien, 2021b; Whyte, 2020a).

Seen in this perspective, sustainability transformations call for a critical engagement with and reconfiguration of human-environment relations (Kates, 2001; Moriggi et al., 2020; Riechers et al., 2021). A growing number of critical social science scholars argue that the challenge goes deeper than the certain ways that relations are performed, to also include how relations are understood (West et al., 2020). In the context of Western societies, human-environment relations are marked by the perception of nature as a resource, framed by particular narratives of the domination of humans over nature for the benefit of societal progress (Ramcilovic-Suominen, 2022; Waddock, 2016). The dualisms of nature-culture, society-environment and human-nonhuman are highlighted as especially problematic assumptions in this regard (Fox and Alldred, 2020; Ison, 2018; Weber and Kurt, 2015). These dualisms have their origins in the European Enlightenment period with central scientists such as Descartes and Newton, whose scientific ideas revolutionized the understanding of humanity's place in the world and the Earth's place in the Universe. These scientists are generally credited with promoting a dualistic view of the world, through dualisms such as subject-object and mind-matter. They are also seen to have paved the way for an atomistic view of individuals as inherently separate from each other and the environment (Barad, 2007; Hamilton, 2002; Haraway, 2016; O'Brien, 2021b; Smith, 1999; Zanotti, 2020). Together these assumptions make up a Western ontology that remains central to the problematic modern societal systems that drive social-ecological crisis, such as colonialism and neoliberal extractivist capitalism (Cirefice and Sullivan, 2019; Whyte, 2020a).

Transformations researchers who recognize the implications of these assumptions for sustainability are therefore increasingly interested in holistic and non-dualistic paradigms for researching and supporting change. Much transformations research draws on systems approaches, such as leverage points (Fischer and Riechers, 2019; Meadows, 1999), coupled social-ecological systems (Moore et al., 2014; Walker et al., 2004) and socio-technical systems (Geels, 2011; Geels and Schot, 2007). Systems approaches are informed by theories of change from within global environmental governance research or Earth systems sciences (Priebe et al., 2021), drawing on conceptualizations such as the Anthropocene and planetary boundaries that call for a global perspective (Steffen et al., 2018, 2015). Systems approaches are holistic in that they attempt to take account of the whole system, focusing on particular features of a system (e.g., drivers or levels) that can be targeted to enable transformations of the system as a whole (Scoones et al., 2020). Systems approaches are non-dualistic in that they recognize that humans and nature are "inextricably connected" (West et al., 2020, p. 304) and identify human-environment relations as a key place to intervene in order to spur sustainability transformations (Riechers et al., 2021).

Yet, despite the assertion that humans and nature are inseparable, in practice, systems approaches often struggle to honor this inseparability in analyses of transformation (Garcia et al., 2020; Hertz et al., 2020). Such studies tend to separate out humans from nature and the social from the ecological in order to identify their individual 'components', "thus inadvertently reproducing the separation they seek to repair" (West et al., 2020, p. 305). While this can seem necessary in order to provide a detailed account of a system, the tendency shows remnants of modernist assumptions grounded in a positivist Western ontology of separation which focuses on 'static entities' as the foundation for reality (Selg and Ventsel, 2020; West et al., 2020). Furthermore, within systems approaches there tends to be a lack of attention to 'interior worlds', e.g., subjectivities, experience, emotions and meaning-making (Hochachka, 2020; Ives et al., 2020; O'Brien, 2021a; Wamsler et al., 2021). This is problematic since sustainability researchers are increasingly finding that "the sustainability crisis is in large part an emergent property of the state of our inner worlds" (Ives et al., 2020, p. 211), meaning how we perceive of our relationship to the environment and what we deem to be of value. Some critical social science scholars are concerned that "these neglected aspects may translate into impoverished theories about transformative change and the conditions in which it arises" (Woroniecki et al., 2022, p. 3). Thus, systems approaches may ultimately be insufficient in accounting for the complexity of current sustainability challenges (O'Brien, 2011; West et al., 2020).

Instead, a growing number of sustainability researchers suggest that relational approaches may be more appropriate for studying transformative change in a non-dualistic manner (Garcia et al., 2020; Walsh et al., 2021; West et al., 2020). These scholars are informed by the 'relational turn' in the social

sciences and humanities, which places relations front and center both ontologically and epistemologically. Rather than viewing reality as consisting of stable entities that interact based on Newtonian understandings of cause and effect, relational approaches generally take a process-oriented and emergent view, where any one phenomenon is a temporary constellation subject to continual change (Garcia et al., 2020). Several scholars within this subgroup of transformations research have expressed concern over the general lack of engagement with relationality in sustainability science in general and sustainability transformations in particular (Walsh et al., 2021; West et al., 2020). This has prompted sustainability researcher Zack Walsh et al. (2021, p. 1) to call for the co-development of "a research agenda for advancing a relational paradigm within sustainability research, practice, and education based on relational ways of being, knowing, and acting."

I respond to this call in this dissertation by taking a 'deep' relational approach to the role of relations in sustainability transformations. By 'deep' I refer to a distinction between those approaches that view relations as an important *attribute* in an ultimately dualistic system and those that view relations as forming the very *foundation* of any system. I do not discredit 'attribute' approaches, which among other things have been used to develop network theories and made room for otherwise overlooked phenomena, such as nonhuman agency. To some degree, however, these approaches remain indebted to dualistic ontologies of separation (i.e., related but separate) (Simpson, 2016; West et al., 2020). The work presented here aims to instead engage with a 'deep' relationality, primarily informed by Indigenous and posthumanist relational ontologies. In my use of the word ontology, I draw on geographer Mario Blaser's (2014, p. 53) treatment of ontology as "a way of worlding," which enacts a position "hospitable to multiple ontologies." This formulation is based on "a commitment to the pluriverse – the partially connected unfolding of worlds", rather than a universal understanding in which different ontologies represent different perspectives on one ultimate reality (2014, p. 55). The theoretical foundation for a 'deep' relationality is presented in *Section 3: Theoretical Anchoring*, while the implications for transformations research and practice are discussed in *Section 6: Insights, Offerings and Further Questions*.

The dissertation presents an empirical study of how relations come to matter in sustainability transformations as they unfold in place. The empirical grounding is important since "sustainability transformation as an empirical phenomenon is not yet very visible in the academic literature" (Salomaa and Juhola, 2020, p. 9)[1]. Furthermore, "few empirical studies investigate what the concept [of transformation] actually means to diverse actors, and how it manifests in practices" (Amundsen and Hermansen, 2021, p. 864). The prioritization of abstract and theoretical research is especially true for

[1] Although examples exist, for instance, through the "Seeds of Good Anthropocene Project" (Bennett et al., 2016) (see related journal articles on the project website: https://goodanthropocenes.net/publications/)

studies that take a relational approach, with focus often placed on clarifying ontological and philosophical assumptions. While important, this 'idealist relationist' approach "lacks a widely applicable and observable material basis" (Jones, 2009, p. 496). According to human geographer Sallie Marston et al., (2005, p. 423) abstract spatial imaginaries easily become 'double abstractions'; "harnessed *a priori* to a fluid imaginary of pure mobility, while also flying over the materialities they endeavour to explain." The lack of empirical grounding means that there are few insights into the role of relations in sustainability transformations as they unfold in place and how a relational approach can deepen these insights (Woroniecki et al., 2022). This matters since sustainability is increasingly recognized to be a place-based phenomenon, "one that requires, in order to be achieved, a deep understanding of the people-place relationship" (Grenni et al., 2020, p. 411). Furthermore, research that only focus on systems and processes risks overlooking those involved in generating and managing transformations, as well as what processes and outcomes are desired and for whom (Gillard et al., 2016). Besides providing a limited theoretical understanding, this risks leaving out important issues of *justice* and *agency* in sustainability transformations.

Issues of *justice* are becoming increasingly salient to transformations researchers (Bennett et al., 2019; Martin et al., 2020; Menton et al., 2020; Moore and Milkoreit, 2020; Ramcilovic-Suominen, 2022). Sustainability scholar Jessica Blythe et al. (2018) point out how the lack of a clear theoretical footing, coupled with a strong sense of urgency, puts the transformation concept at risk of being co-opted for less emancipatory aims, including justifying top-down control, silencing critical voices and perpetuating socio-economic and political inequality. Rather than being emancipatory, transformations can thereby end up reinforcing the status quo. Thus, how to ensure justice, for instance through democratizing sustainability transformations, is increasingly in focus (Pickering et al., 2022; Ramcilovic-Suominen, 2022; Stirling, 2015). The question of justice in transformation gains further significance when viewed in light of the experiences and challenges of politically marginalized groups, including many Indigenous peoples, who have historically had transformative changes forced upon them (Davis and Todd, 2017; McGregor et al., 2020; Whyte, 2020a). How to move ahead rapidly to respond to ongoing social-ecological crisis in ways that not only take current injustice into account but works to resolve and dismantle systems and relations of oppression is a paramount task for sustainability scholars and practitioners (Gram-Hanssen et al., 2021).

Solely focusing on systems and processes without a grounding in place similarly overlooks issues of *agency*. While humans are often pointed to as part of the problem of social-ecological challenges, for example through carbon-intensive lifestyles in the context of climate change, the solution space, and thus the space where transformations might unfold, is often perceived in policy discourse to be limited to national governments, transnational corporations and international agreements and conventions

(O'Brien, 2015; Stirling, 2015). When humans are considered, they are often framed within the rational choice paradigm, which "suggests a very limited view of human agency" (Otto et al., 2020, p. 1). Similarly, while a planetary perspective is crucial for understanding the scope of the challenges that lay ahead, this perspective risks disregarding the insights from numerous case-studies on the importance of locally-grounded agency for societal change (Woroniecki et al., 2022). Such top-down discourses and approaches leave little or no room for individuals and communities to be the drivers of transformative change (Gram-Hanssen, Under Review; Riedy, 2021).

Rather than focusing on larger societal structures such as states or corporations, I center my inquiry on particular human and nonhuman relations, tying social change to specific places, people and processes and exposing the ambiguous and personal character of change (Kuus, 2019). Focusing on change contextually as it unfolds in place has the potential to disrupt grand societal narratives such as globalization (El Khoury, 2015; Gibson-Graham, 2002; Massey, 2002), the Anthropocene (Baldwin and Erickson, 2020; Bennett et al., 2016; Castree, 2021; Moore, 2017; Veland and Lynch, 2016), and, increasingly, transformation; insisting that "transformations are always located somewhere, experienced by someone" (Woroniecki et al., 2022, p. 18). Taking a starting point in the lived experiences and perspectives of people whose voices are otherwise silenced or disregarded in political discourse, forces us to identify the 'what,' 'where' and 'who' of such grand narratives; including the places, people and processes involved in transformations (Amundsen and Hermansen, 2021; Charli-Joseph et al., 2018; Karlsson and Hovelsrud, 2021; Priebe et al., 2022; Westskog et al., 2022; Woroniecki et al., 2022). By taking a 'deep' relational view on deliberate transformation, I do not perceive of these places, people and processes in isolation, but rather trace the relations to the social-ecological systems within which they are entangled. Similarly, I do not hold the involved actors as inherently separate from one another but remain open for a processual and emergent understanding of agency, with implications for how to think of the relationship between changes at different scales. As I will demonstrate in this dissertation, a 'deep' relational approach can help identify the possibilities and limitations for deliberate transformations toward sustainability, while accounting for a deeper understanding of issues of both justice and agency. This is done through a non-dualist and ethically grounded understanding of relations and how they come to matter.

1.3 Aims, Questions and Articles

The aim of this dissertation is to ***clarify the role of relations in processes of deliberate transformations toward sustainability*** and ***articulate what new theoretical insights can be gained by taking a relational perspective on such processes.*** It does so through an empirical case study of how relations come to matter in the Alaska Native community of Igiugig.

I approach my inquiry through three interrelated research questions that focus on observation, theorization and practice:

> RQ1 – How do Igiugig community members' perceptions of relations and engagements with them enable deliberate transformations in the community and beyond?
>
> RQ2 – In what ways can a 'deep' relational perspective on deliberate transformations in Igiugig inform a theorization of transformations that accounts for issues of justice and agency?
>
> RQ3 – What are the implications of a 'deep' relational paradigm for how to research and support deliberate transformations in ways that are equitable and just?

The five articles included in this dissertation, four single-authored and one co-authored, all provide partial answers to the above research questions. **Articles 1-4** are empirically based and address RQ1 and RQ2 from different perspectives, while **Article 5** addresses RQ 2 and RQ3 with a focus on research methodology and practice. In order to operationalize the overarching research questions, each article has been guided by a secondary research question. Table 1.3.1 below maps out the core arguments in each of the articles.

Table 1.3.1 Dissertation at a Glance

Article	Knowledge Gap	Research Question	Central Claims	Methods
Article 1: Leaving, Staying or Belonging: Exploring the Relationship Between Formal Education, Youth Mobility and Community Resilience in Rural Alaska	How does sense of place impact community resilience in rural Alaska?	What is the relationship between relation to place, youth mobility and community resilience in Igiugig?	Rather than educational choices or job availability alone, sense of belonging and relation to place is important for fostering a continuous and sustainable relation between rural youth and their home community. Dualisms of staying or leaving are ultimately not helpful in estimating and supporting rural community resilience. Relations between individuals and their communities need more attention in sustainability research.	Qualitative interviews, narrative analysis and literature review
Article 2: The Role of Flexibility in Enabling Transforma-tional Social Change: Perspectives from an Indigenous Community using Q-Methodology	What is the role of narratives in enabling deliberate transforma-tions?	What are the main narratives of change in Igiugig and how are they accounted for in the community's sustainability work?	Flexibility of narratives coupled with an explicit centering in collective values enables an agile and deliberate engagement with change that makes room for individual expressions within a larger collective narrative. This grounded yet flexible stand helps identify a viable pathway in contested situations and makes room for enacting alternatives to otherwise 'locked' scenarios.	Q-method-ology (including qualitative interviews), narrative analysis and literature review

Article 3: Individual and Collective Leadership for Deliberate Transforma-tions: Insights from Indigenous Leadership	What is the relationship between individuals and collectives in transforma-tive change?	What characterizes the relationship between individuals and the community as a whole in processes of leading change?	Leadership for sustainability transformations can be seen as a process of 'individual-collective simultaneity,' in which individuals enact their individuality in relation to the whole. Rather than reducing the significance of the individual, this relational and processual account highlights how individuals come to matter through how they co-create the whole.	Qualitative interviews, narrative analysis and literature review
Article 4: From Scaling to Relating: Quality of Relations Matter for Generating Transformative Systems Change	How can local sustainability transforma-tions be 'scaled' to generate systems change?	What role do relations play in enabling and disabling local community change to contribute to global systems change?	Quality of relations matter for the kinds of transformations the community can enact as well as the 'scalability' of this work. Rather than focusing on 'scaling' per se, enhancing supportive relations and dismantling oppressive relations in place is necessary for 'scaling' sustainability transformations to generate systems change.	Qualitative interviews, narrative analysis and literature review
Article 5: Decolonizing Transformations Through 'Right Relations'	What approaches and perspectives can enable just and equitable transforma-tions?	How can a relational perspective help decolonize transforma-tions research?	Climate change and the interrelated challenge of persistent colonialism are fundamentally relationship problems. Approaching transformations research and practice through the lens of 'right relations' can help to ensure equitable and just processes and outcomes. A relational perspective shows the entanglement of 'inner' transformation and societal transformation.	Method-ological reflections and literature review

1.4 Disciplinary Anchoring

The dissertation is anchored in human geography with a focus on human-environment relations and societal transformations through concepts such as relation, place, scale and agency. Yet because the notion of transformation goes beyond disciplinary borders and beyond academia, the research has been designed and conducted as an inter- and transdisciplinary study.

Transformations research is inherently interdisciplinary and has been described as the "conceptual glue" that connects the diverse research strands focusing on structural change for sustainability (Wittmayer et al., 2018, p. 4), including resilience research (Olsson et al., 2014; Zanotti et al., 2020), social innovation (Moore et al., 2015; Wittmayer et al., 2019) and psychology (Bamberg et al., 2021; Hochachka, 2021). My study is interdisciplinary in that I have taken a relational approach to deliberate transformation as my starting point and engaged with different social science studies and theories in the process of identifying and answering my research questions. While some of the theories I engage

with are widely used by human geographers, such as resilience theory (**Articles 1** and **2**) and decolonial theory (**Article 5**), others are less common, such as leadership theory (**Article 3**).

Transformations research is similarly inherently transdisciplinary in that it aims to foster more equitable decision-making and social learning for collective action (Schneider et al., 2019), recognizing the need to not only produce knowledge *about* the world, but generate "wisdom about how to act within it" (Fazey et al., 2020, p. 5). My study is transdisciplinary first and foremost by way of engaging with perspectives and narratives outside the academe (Knapp et al., 2019). Approaching my study in a transdisciplinary manner, I recognize that "contemporary western science" is but "one of an estimated 6,900 culturally mediated approaches to knowledge development that exist on planet Earth today" (Cole, 2017, p. 127). These heterogeneous approaches are not considered artefacts to be analyzed and validated through abstract, academic concepts but rather as ways of knowing that exist alongside, and sometimes deeply entangled with, Western scientific knowledge. It is increasingly recognized that "transdisciplinarity is simultaneously an attitude and a form of action" (Thompson Klein, 2004, p. 521) in that it necessitates an openness and reflexivity as well as direct engagement with diverse and potentially conflicting knowledge systems. I align with transdisciplinary scholar Cyrille Rigolot (2020) who suggests that transdicsiplinarity be considered a discipline as well as *a way of being*, blurring the lines between 'research' and 'personal life'. This aligns with feminist and decolonizing methodologies, both of which form my methodological foundation. I describe my approach to research in more detail in *Section 4: Methodology and Research Design.*

Throughout much of this work, I draw explicitly on formulations of relationality from Indigenous scholars and thinkers (e.g., Cajete, 2000; Watts, 2013) as well as from within academic fields such as Indigenous geographies (e.g., Coombes et al., 2011) and decolonial geographies (e.g., Leeuw and Hunt, 2018) in order to situate myself better within the context of my collaborators, most of whom identify as Alaska Native. I have also found these formulations of relationality helpful in transcending the modernist and positivist assumptions of dualism, hierarchy and linearity otherwise characteristic of much transformations research (Bouzarovski and Haarstad, 2019; Gram-Hanssen, Under Review). As with the surprising lack of engagement with relational social science theorizing within sustainability science, there is a (potentially more surprising) lack of engagement with Indigenous notions of relationality within relational social science theorizing (Johnson et al., 2016; Whyte et al., 2016). While there are significant ontological and epistemological differences between Indigenous perspectives on relationality and the majority of social science perspectives from within the academe, I join others in arguing that there are many fruitful points of convergence as well. This is especially relevant when focusing on certain 'radically relational' perspectives found within human geography and science and

technology studies, such as posthumanist positions (Johnson et al., 2016; Rosiek et al., 2020; Zanotti, 2020). This is discussed in more detail in *Section 3: Theoretical Anchoring.*

My grounding in Indigenous relational ontologies is also informed by a recognition of the acute need to center discussions of sustainability and transformations on ontologies other than the positivist Western one, in order to help decolonize these concepts and enhance their potential to further equitable and just change (Lam et al., 2020a; Romm, 2018; Zanotti et al., 2020). From an Indigenous and decolonial perspective, sustainability transformations are inherently tied to the question of justice and must imply not only a reworking of human-environment relations, but critically examining and dismantling exploitative relations and systems within society and between societies (McGregor, 2018; Whyte, 2020a). As sustainability researchers Laura Zanotti and Marcela Palomino-Schalscha (2016, p. 140) assert, "sustainability science is ripe for engagements with decolonising methodologies." These perspectives align with the 'decolonial turn' in human geography (Leeuw and Hunt, 2018; Louis, 2007; MacDonald, 2017; Naylor et al., 2018; Sarah A Radcliffe, 2017; Shaw et al., 2006), where geographers are called upon to take responsibility for their own and their discipline's involvement in institutionalized colonialism, and to "ask what (geographical) thought has to become to face the political, philosophical, and ethical challenges of decolonizing" (Sundberg, 2014, p. 34). While human geographers increasingly engage with decoloniality, geographers Sarah de Leeuw and Sarah Hunt (2018) warn against the tendency for this engagement to be merely conceptual, decoupling the concept of decolonization from Indigenous knowledges and ways of being. This, they argue, prevents the concept from doing its intended work. These concerns circle back around to the importance of doing research in place, especially research centered on knowledges, experiences and perspectives of marginalized groups, such as many Indigenous people. I speak more to the link between decolonization and transformation and the importance of collaborating with Indigenous communities in transformations research in *Section 2: Background*.

Thus, while this dissertation is not about decolonization per se, throughout the project I have increasingly realized the centrality of what geographer Richie Howitt (2020) refers to as the 'unnatural disaster of colonization'. The ongoing process of colonization is key to social-ecological crisis and decolonizing practices, relations and systems is therefore paramount to truly transform society towards sustainability (Gram-Hanssen et al., 2021). My gradual realization of the centrality of colonialism for social-ecological problems and the imperative of decolonizing the theory and practice of transformation is evident in the gradual shift in my articles, from a focus on concepts such as *community resilience* in **Articles 1** and **2** to a focus on *relationality* and *responsibility* in **Articles 3, 4** and **5**. Besides an academic document that contributes to the theorizing of deliberate transformations,

these pages therefore also aim to further the decolonizing agenda of Indigenous communities and peoples, including the people of Igiugig.

To a large extent, this dissertation is about specific change in a specific place. Yet, through engaging with theoretical conversations within human geography and related fields, the dissertation is also about the nature of change and the underlying processes and approaches that may enable transformations towards equitable and sustainable futures. With this work, I thus contribute towards an empirically grounded relational theorization of transformation through investigating how relations come to matter for sustainability transformations in a community context. The research presents a case study of the perspectives and approaches that inform deliberate transformations in the Alaska Native community of Igiugig in southwestern Alaska. The research focuses on community members' perceptions of what drives these changes in the community (**Article 2**), and the importance of interpersonal relations and human-environment entanglements in this regard (**Articles 1-4**). Addressing issues of both theory and practice, the research further asks what a 'deep' relational approach adds to our understanding of how transformations can be led (**Article 3**), decolonized (**Article 5**) and scaled (**Article 4**). Informed by community member narratives and 'deep' relational theorization, the research *offers four insights*.

1) The research asserts that ***relations matter*** for enabling deliberate transformations toward sustainability. Especially relation to place, and the associated notion of *belonging to place*, is highlighted as an underappreciated relation crucial for enabling people to be the drivers of sustainability transformations in their unique locations (**Articles 1**) while also connecting 'local' change to 'global' systems change (**Article 4**).

2) Showing that relations in and of themselves are not enough to ensure that transformations are just and equitable, the research highlights the importance of a certain ***quality of relations*** for unleashing the full potential of transformations in research and practice and to ensure that community transformations support systems change. This quality, which informs both how relations are understood and performed, is characterized by a 'deep' relational perception grounded in reciprocity and care, so-called '*right relations'* (**Articles 4** and **5**).

3) The research identifies persistent dualisms such as modern/traditional (**Article 1**), individual/collective (**Articles 2** and **3**), local/global (**Article 4**) and subjective/objective (**Article 5**) as limiting the ability of modernist theories of change to account for and support sustainability transformations. Instead, grounded in a 'deep' relationality drawing on Indigenous relational ontologies and relational social science theories and philosophies, the research advances a ***both/and stance of 'simultaneity'*** (**Article 3**). The research finds that a

'deep' relationality is uniquely positioned to guide transformations research and practice in ways that account for the above insights (belonging, 'right relations' and simultaneity) while paying careful attention to issues of *justice and agency* (**Articles 4** and **5**).

4) The research points to the possibility and need for turning to such ontologies and perspectives, and for ***'bridge-building'*** across ontologies and knowledge-systems to co-create knowledge that can inform both the theory and practice of deliberate transformation. Grounded in 'right relations', such bridge-building can be furthered by a certain flexibility of narratives and perspectives among actors involved in sustainability processes (**Article 2**). Importantly, bridge-building must be based on respecting differential worlding practices while acknowledging the entangled co-becoming of humans and nonhumans as inhabitants of planet Earth (**Articles 3, 4** and **5**).

1.5 Structure of Dissertation

The dissertation has a two-part structure. The first part is divided into several sections explaining the questions, theories, methodologies and methods that have guided this work and discussing its theoretical implications for human geography and beyond. The second part contains the five articles included in this dissertation.

In the first part of the dissertation, the introduction **(1)** sets the stage for the research. The background section **(2)** presents some of the contextual information that helps situate the subsequent sections and the articles, focusing on transformation as a concept, the relevance of engaging with Indigenous communities in transformations research, as well as the context of the community of Igiugig, Alaska. The theoretical section **(3)** lays out the theoretical anchor points around which this dissertation swirls. It presents how I approach transformation through the conceptualization of deliberate transformations towards sustainability and clarifies the 'deep' relational approach through an engagement with Indigenous and posthumanist relationality. The section ends with a commentary on the challenges and possibilities for engaging multiple ontologies in research. The section on methodology and research design **(4)** lays out my ontological-epistemological-ethical assumptions and considerations. It anchors the research in decolonial and feminist research traditions, clarifies the methodological choices associated with these traditions and outlines the methods used in the articles and the process of conducting fieldwork. The section also deals with my positionality and identifies some specific ethical considerations and possible limitations. The subsequent section **(5)** provides a summary and discussion of the five articles, including how they relate to one another. The final section **(6)** returns to the research questions, presents the partial answers provided by the articles, and identifies important questions that invite further research.

2. BACKGROUND

2.1 Situating the Transformations Concept: Climate Change, Environmental Justice and (De)Colonization

2.1.1 Transformation as a Radical Response to Social-Ecological Challenges

Sustainability science and sustainability discourse more generally is experiencing a 'transformative turn' (Blythe et al., 2018). In the context of sustainability and global change research, the concept of transformation has emerged as part of a larger concern over the lack of wished for results from climate change adaptation work (Adger et al., 2009; IPCC, 2014; Kates et al., 2012; Pelling, 2011; Steffen et al., 2018)[2]. The concept calls for more radical responses to climate change that recognize the interconnections between this and other social-ecological challenges and that aims to address the root causes of these challenges (Gillard et al., 2016; IPBES, 2019; O'Brien, 2012; Waddock et al., 2020) (although see Box 2.1.1.1 below for the relationship between transformation and transition). Rather than viewing these challenges as largely environmental problems to which technical solutions will suffice, critical social scientists use the concept of transformation to call attention to the social, cultural and political drivers of social-ecological change (Díaz et al., 2019; Nightingale et al., 2022). Similarly, rather than assuming that only certain sectors or structures within society will need to change, the concept refers to the need for wide-spread change across geographical and political scales and domains (Hölscher et al., 2018; Linnér and Wibeck, 2021; Patterson et al., 2017).

The concept as it is used within sustainability research is explicitly normative. Ecologist Ian Scoones et al. (2020, p. 66), for instance, argue that "to achieve the humanitarian, ecological and technological visions encapsulated in the SDGs [Sustainable Development Goals], transformation will be required at multiple scales and organizational levels, and with deliberate normative steering." Thus, while much current social-ecological change is transformational (e.g., climate change), the kinds of transformations called for are those that move society towards enhanced sustainability (IPCC, 2014). The concept is increasingly being applied across various societal domains, including in activism (e.g., Extinction Rebellion and Fridays for Future) and in the frameworks and reports of international

[2] This distinction between adaptation and transformation is not clear cut. In recent years, the concept of transformation has been increasingly integrated into adaptation research (Manuel-Navarrete and Pelling, 2015), for instance through the notions of transformational and transformative adaptation (Few et al., 2017; Hochachka, 2020; Shi and Moser, 2021; Ziervogel et al., 2016). Yet empirical research indicates that the transformative potentials of adaptation projects often get undermined by decision-makers prioritizing "incremental adaptation that protects and preserves existing systems and behaviours, over transformative adaptation that will disrupt them or require their abandonment or displacement" (Eriksen et al., 2021, p. 5). Thus, whether transformational adaptation actually leads to transformative outcomes that help address the root causes of social-ecological challenges is not a given.

platforms concerned with how to halt biodiversity loss (IPBES, 2019), limit global warming to below 1.5°C (de Coninck et al., 2018), or reach the SDGs (TWI2050, 2018).

Box 2.1.1.1 A Note on the Relationship Between Transitions and Transformations

The concept of transformation is sometimes used interchangeably with and other times distinguished from the related concept of transition, which indicates a gradual shift toward enhanced sustainability (Hölscher et al., 2018). A central distinguishing feature between these two concepts is that while transitions are generally structured and managed processes toward a known and desired result, transformations are by their nature uncertain, emergent and multifaceted, which makes it challenging and potentially counter-productive to attempt to manage them under the existing societal structures and paradigms (Ramcilovic-Suominen, 2022).

Research from human geography, anthropology and organizational studies find that the benefits of transitional change lie in the ability of individuals and communities to better comprehend and integrate changes, which supports a sense of ontological security. Attempts at full-scale transformations, on the other hand, can lead to push-backs and unintended consequences, as dramatic change is often unruly and potentially disruptive of people's daily lives (Termeer et al., 2017). Transformations imply a fundamental shift from a known state to an unknown state, often involving letting go of certain positions and privileges, especially for those benefitting from the current system (O'Brien, 2012). However, because of their gradual and less disruptive nature, transitions risk being co-opted by the current system, endangering their transformative potential (Stirling, 2015).

There is an increased awareness of the need for both transitional and transformational change if we are to meet current social-ecological challenges in ways that are equitable and just (Park et al., 2012). While I align myself with this perspective, in this work I focus on changes that all together transform systems, structures and relations toward enhanced sustainability. I therefore exclusively refer to transformations throughout this dissertation.

Despite its rapid uptake, the concept of transformation lacks a clear definition (Feola, 2015; Scoones et al., 2020). Understood in the broadest sense, transformation can both happen incrementally over a long period of time or rapidly and surprisingly. Similarly, transformation can be a response to a new circumstance or can be enacted anticipatory of future changes (Kates et al. 2012). In transformations research, it is generally understood to imply "profound and enduring non-linear systemic changes, typically involving social, cultural, technological, political, economic, and/or environmental processes" (Linnér and Wibeck, 2019, p. 4). Yet, in research as in popular discourse, there are many different understandings of what these processes entail, including different understandings of their properties and how (and if) they can be initiated, supported or managed (Feola, 2015).

The past years have seen an exponential increase in research that aims to theorize the concept of transformation, including a host of agenda-setting papers and review articles (Chan et al., 2020; Fazey et al., 2017; Feola, 2015; Lam et al., 2020b; O'Brien, 2021a). Some scholars focus on the drivers of transformation (Linnér and Wibeck, 2021, 2019), including human and nonhuman agency (Charli-Joseph et al., 2018; Huggins and Thompson, 2020; Pesch, 2015; Werbeloff et al., 2016; Westley et al., 2013), or how transformations can be scaled (Lam et al., 2020b; Loorbach et al., 2020; Moore et al., 2015). Others focus on the quality of change, for instance through consideration of power and justice

(Bennett et al., 2019; Blythe et al., 2018; Lahsen and Turnhout, 2021; McGowan et al., 2021; Nightingale et al., 2022). Recognizing the heterogeneous nature of transformation and how it is understood and applied, sustainability researchers Helene Amundsen and Erlend Hermansen (2021) suggest that it be viewed as a boundary object that is used with a high degree of flexibility, and that it therefore should be conceived of in the plural, *transformations*. This is supported by critical, feminist and decolonial perspectives that emphasize the danger of a one-size-fits-all approach to transformation and sustainability (Blythe et al., 2018; Nightingale et al., 2022).

Box 2.1.1.2 A Note on Sustainability

The concept of sustainability is used throughout this dissertation, most often in connection with transformations, such as through the notion of deliberate transformations toward sustainability. While I engage in more detail with the concept of transformation in *Section 3: Theoretical Anchoring*, here I want to speak to my understanding of sustainability.

In both political and popular discourse, understandings of sustainability most often draw on the Brundtland Report (World Commission on Environment and Development, 1987), which has two central assumptions: 1) that sustainability entails an effort to ensure and enhance human wellbeing while staying within planetary boundaries in a multigenerational perspective. And 2) that sustainability is comprised of social, economic and ecological components. However, it is often pointed out that the concept means different things to different people, to the extent that it lacks solid meaning (Johnston et al., 2007). Subsequently, sustainability is understood to be "an inherently normative concept" (Robinson, 2004, p. 380) with a high degree of flexibility, making it difficult and potentially counterproductive to reach a set definition (Ramsey, 2015).

In my understanding of sustainability, I draw on scholars and thinkers who suggest a dislodging of the notion of sustainability from the dualistic assumptions of modernist metaphysics. Rather than an end-state, I understand sustainability to be akin to what sustainability researcher John Robinson (2004, p. 381) describes as "an emergent property", defined as emerging from "a conversation about desired futures that is informed by some understanding of the ecological, social and economic consequences of different courses of action." Robinson suggests that transcending conflict over values and priorities will require locally grounded processes where differing views and worlding practices can be expressed and evaluated. Similarly, but centering on Indigenous ways of knowing and being, biologist and philosopher Fulvio Mazzocchi (2020, p. 77) suggests that the meaning of sustainability may be approached through what he calls a 'laboratory for sustainability', defined as "a genuinely pluralist space in which multiple cultural expertise can interact and mutually enrich, yet maintaining their distinction and integrity."

While recognizing this need for plurality, my understanding of sustainability and the way I use the concept in this work is anchored in Indigenous and other 'deep' relational ontologies that emphasize the entangled co-becoming of humans and environments and the responsibilities involved in caring for such relations (Harris and Wasilewski, 2004). In this perspective, sustainability can be seen as the process of striving for harmony among relations (Cajete, 2000) to ensure the wellbeing of both people and the planet. Importantly, this harmonizing is not only about relations among beings but also within beings, involving "the integration of mind, body and spirit" (Cajete, 2000, p. 212). While this sense of responsibility and harmony is seen to govern all relations, Indigenous ontologies also emphasize that all such relations are uniquely tied to place, meaning that expressions of sustainability will vary depending on context.

For this research, I am particularly informed by the community of Igiugig, in which sustainability has been equated to wellbeing, understood as "a way of being that arises when people and ecosystems are healthy and when individuals, families and communities equitably practice their chosen ways of life and enjoy a self-defined quality of life, now and in future generations" (Salmon, 2021).

2.1.2 Climate Change and Indigenous Communities: Issues of Environmental Justice

While sustainability alludes to a desirable condition marked by the wellbeing of both people and the planet, transformation refers to a particular process that may move a system closer toward this condition (Zanotti et al., 2020). Transformation is thereby inherently processual, bringing the attention to how such processes can be initiated and engaged with for desirable outcomes. As Scoones et al. (2020, p. 65) argue, "few aspects of actionable knowledge for sustainability are more crucial than those concerning the processes of transformation." This need for understanding and supporting transformative change is amplified in the context of Indigenous communities. The empirical material drawn on in this dissertation comes from my collaboration with the Alaska Native community of Igiugig. Besides the unique characteristics of Igiugig, which I discuss below, I see several reasons why an Indigenous community is a relevant collaborator for inquiring into both the possibilities and the challenges of sustainability transformations, as well as how to think relationally about the process of transformation.

An overwhelming amount of empirical research has documented the ways in which Indigenous people and communities are disproportionally impacted by social-ecological challenges, such as climate change (Abate and Kronk, 2013; de Coninck et al., 2018; IPBES, 2019; Maldonado et al., 2014). Along with other minorities, Indigenous people are negatively affected by such changes in multiple and interacting ways that often reinforce socio-economic marginalization and vulnerability (Baird, 2008; Ford et al., 2020). In the Arctic, where climate change is occurring at a faster rate than most other places, temperature increases have led to changing environmental conditions that directly impact Indigenous ways of life (Eira et al., 2018; Ford et al., 2006; Nuttall, 2007). This includes changes in abundance and migration patterns of animals used for subsistence, causing it to be more difficult and expensive to perform subsistence activities; lack of ice along the coasts and on rivers and lakes, making winter travel unpredictable and dangerous; and coastal erosion caused by the thawing of permafrost, in some cases leading to the need for community relocation (AMAP, 2021). While much social science research focusing on climate change impacts has tended to inquire into the causes and expressions of vulnerability, and thus portrayed Arctic Indigenous communities as relatively passive, more recent research has focused on these communities as rights-holders and active participants in both research and governance (Cameron, 2012; Stephen, 2018).

With changing climates and ecosystems, people's relationships with those systems also change. For many Indigenous people, such change does not only cause harm in a physical sense but also in a cultural and spiritual sense, due to the ways in which culture and language has evolved with the relationship to the land (Ferguson and Weaselboy, 2020; Watts, 2013). A growing community of critical and anti-colonial scholars identify the ways in which social-ecological change is intimately linked to

industrialization, which has first and foremost been facilitated through colonial expansion of the European nations (Davis and Todd, 2017; Whyte, 2020a). In this way, social-ecological challenges such as climate change are seen as intimately tied to colonization (Gram-Hanssen et al., 2021). Furthermore, in this perspective climate change is not a unique and isolated challenge but rather the logical continuation of a multi-generational disruption of Indigenous ways of life and culture. Drawing on the experiences of Indigenous peoples of Aotearoa (Maori name for New Zealand), Parsons and Nalau (2016, p. 86) thus assert that "for indigenous peoples colonial issues continue to set the backdrop for new encounters, including their experiences of and responses to global environmental change."

Box 2.1.2.1 A Note on Indigenous Peoples, Colonization and Decolonization

Throughout this dissertation, I extensively use the word Indigenous to refer to particular peoples, cultures and ontologies. Leaning on the United Nations Declaration on the Rights of Indigenous Peoples (United Nations, 2013) and contemporary Indigenous scholars (e.g., Alfred and Corntassel, 2005), I use ***Indigenous peoples*** to refer to *peoples of long-term settlement and connection to specific lands who have been and are being adversely affected by various forms of colonialism*. Relatedly, I use ***Indigenous cultures*** to refer to *past and present-day material and immaterial cultures and lifeways that draw on and evolve from ways of being and knowing grounded in Indigenous ontologies.* And I use ***Indigenous ontologies*** to refer to *ways of world-making by Indigenous people that are guided by a recognition of relationality, respect and reciprocity between and among all beings.* (See *Subsection 3.3: 'Deep' Relationality Through Indigenous and Posthumanist Ontologies* for a further engagement with Indigenous ontologies).

These definitions recognize the ever-changing and dynamic nature of culture and knowledge, and does not insist on keeping the past separated from the present in a linear understanding of time, but rather focuses on how past, present and future co-create culture and knowledge (Berkes, 1999). Recognizing the risk of erasing differences in culture and experience of Indigenous peoples, whenever possible I refer to regionally specific terminology, such as Alaska Native or First Nation, as well as specific cultural groups, such as Yup'ik in the case of Igiugig. When referring to Indigenous scholars who speak to Indigenous cultures and ontologies, I include reference to their cultural and/or tribal affiliation so as to recognize that they too come from 'somewhere.' (See Sarah Radcliffe (2017) for a discussion on the use of 'Indigeneity' vis-à-vis 'Indigenous people').

Another central set of concepts is that of colonization and decolonization. I refer to ***colonization*** as *the historical and continuous process of oppression and dispossession of Indigenous peoples with the intended or unintended consequence of damaging or destroying Indigenous bodies, societies and cultures.* This recognizes that colonization is not an event but a process; "the sum effect of the diversity of interlocking oppressive social relations that constitute it" (Coulthard, 2014, p. 15). I refer to ***decolonization*** as *the continuous process of identifying and dismantling systemic and institutionalized colonialism to ensure the freedom, wellbeing and self-determination of Indigenous peoples*. This recognizes that the process of colonization can never be undone and emphasizes the simultaneous need to decolonize structures as well as hearts and minds (Smith, 1999).

I recognize that both colonization and decolonization have specific meanings in the context of Indigenous peoples, with the concept of decolonization referring specifically to the repatriation of Indigenous lands (Tuck and Yang, 2012). However, I also refer to these terms more broadly to indicate the ways in which the process of colonization has been damaging to the world at large and the foundational need for decolonization for the benefit of people and the planet (Marsden, 2017).

Social-ecological challenges, such as climate change, and the possible range of responses are increasingly framed within discourses of environmental justice (Martin et al., 2020; Menton et al., 2020). The environmental justice movement, while diverse, aligns in the acknowledgement of the

differentiated responsibilities and impacts of social-ecological challenges, including historical legacies of oppression and exploitation (Walker, 2011). Furthermore, responses to such challenges in the form of 'sustainability solutions' are perceived as often perpetuating injustices (Martin et al., 2020). The unique context of colonization along with differential conceptualizations of what constitutes 'justice' has prompted some scholars to call for a distinct formulation of Indigenous environmental justice (Dhillon, 2018; McGregor et al., 2020).

2.1.3 Transformation and (De)Colonization

The relationship between transformation and (de)colonization is complex. Firstly, colonization can be said to have been a deep-rooted transformation of Indigenous cultures and lifeways, changing not only how Indigenous peoples live but forcing changes to cultures and identities, with consequences still unfolding by way of intergenerational trauma (Elliott, 2020; Garcia-Olp, 2018). In many ways this transformation was deliberate and based in an economic imperative for the European nations to generate wealth to support the welfare of their growing populations, and a perceived moral imperative to civilize the 'savages' encountered in 'The New World' and 'The Orient' (Smith, 1999). In the context of Turtle Island (Native American name for North America), settler-colonialism has been articulated as settlers aspiring to "transform Indigenous homelands into settler homelands" (Whyte, 2018, p. 324). The history and continuous processes of colonization thus offers a cautionary tale for grand social projects driven and legitimized by the urgency of socio-economic problems and/or 'moral obligations' (Gram-Hanssen et al., 2021). Many popular and political discourses on transformation emphasize urgency and the need to act in order to meet the global social-ecological challenges, often sidestepping the cultural implications of such actions, arguing that there is no time for being culturally sensitive when the future of humanity is at stake (Bravo, 2009; Cameron, 2012; Lynch and Veland, 2018; Swyngedouw, 2010; Whyte, 2020b). Yet, as highlighted by numerous researchers and activists embedded in place, cultural sensitivity, care and love has never been more important (Haverkamp, 2021).

This speaks to the difficulties of working with concepts such as sustainability and transformation in Indigenous contexts, where such concepts might be seen to represent colonial powers and to clash with Indigenous cosmologies and understandings of wellbeing (Vásquez-Fernández and Ahenakew pii tai poo taa, 2020). Working on issues of social-ecological change in the Alaskan Arctic, sustainability researcher Laura Zanotti et al. (2020, p. 7) found that while their Iñupiat collaborators acknowledged the need for their communities to adjust institutions and economies to experienced and expected changes, "paradoxically, neither resilience and sustainability as paradigms nor the social-ecological systems approach resonated." In place of systems-based approaches, the Iñupiat collaborators suggested relational approaches to human-environment interactions, and rather than sustainability

and resilience, wellbeing and self-determination were highlighted as important research topics (Zanotti et al., 2020). This invites further reflection as to how transformational work can and should be perceived and furthered and calls for other more political and empowering research agendas that acknowledge the colonial past and present of the Indigenous reality and links this critically with current and future vulnerabilities to climate change and potentials for sustainability transformations (Cameron, 2012; Golden et al., 2015; Parsons and Nalau, 2016). Largely, this is a call for decolonizing approaches to the research and practice of transformations (Gram-Hanssen et al., 2021; Zanotti et al., 2020). The link between transformation and decolonization is a central inquiry in **Articles 4** and **5** in this dissertation.

Secondly, with decades of decolonization and Indigenization movements, Indigenous peoples are involved in processes of deliberate transformation of their own making. The different approaches for how to structure society, hinging on different ontologies and worldviews, provide examples of how Western society might think anew about human-environment relations. The processes and lessons learned from the decolonization movements across the world can thus provide important insight into possible pathways towards deliberate transformations of society (de Coninck et al., 2018; IPBES, 2019; Kimmerer, 2013; Lewis et al., 2020; MacKinnon et al., 2017; Marsden, 2017; No'kmaaq et al., 2021). Such engagement and learning must be done in respectful partnership, however (Thomas, 2022), and cannot be undertaken before the recognition and active dismantling of colonial relations (Whyte et al., 2018), including the return of land stewardship to Indigenous communities and groups (Tuck and Yang, 2012). This implies that transformations research and practice must support ongoing decolonization efforts and not shy away from engaging with the messy reality of struggles for freedom. A 'deep' relational approach might be able to aid in this process (Vásquez-Fernández and Ahenakew pii tai poo taa, 2020).

2.2 Introducing Igiugig, Alaska

The paragraphs above form a compelling argument for why an Indigenous community is an interesting – and potentially crucial – case for transformations research. This is not only about gaining insights into this particular context, but about the potential for thinking anew about subjectivity, agency, justice and political action in the context of transformations, since "once different agents are brought into view, new ways of thinking about action become possible" (Kuus, 2019, p. 164). Here I introduce one such group of 'agents', the people of Igiugig, Alaska, arguing that they too can help us think differently about transformative change. To a large extent, this dissertation is about the community of Igiugig. While most of the articles explain why I have pursued collaboration with this community, including some of the community work that can be characterized as deliberately transformational, I add more detail here that will be important for understanding the dissertation as a whole.

Figure 2.2.1 Welcome sign in Igiugig, Alaska (Photo by Author, 2017)

The community of Igiugig (pronounced 'iggy-AH-gig') is located in Bristol Bay in southwestern Alaska, USA, where Alaska's largest freshwater lake, Lake Iliamna feeds into the Kvichak River (see Figure 2.2.2 below). In Yup'ik[3], *Igiugig* means 'like a throat that swallows water' (Igiugig Village Council, n.d.). The land on which Igiugig sits has been the homelands of Alaska Native peoples for millennia, and before the Village of Igiugig was established, the lands and waters were used for fishing, hunting and gathering activities by the ancestors of the Igyararmiut (the people of Igiugig) (Salmon, 2008). The Yup'ik were traditionally semi-nomadic with a winter settlement and a summer settlement, moving over large areas of land in pursue of game, fish and plants (Branson, 2006; VanStone, 1967). The oldest of the community's Elders grew up with this lifestyle and can tell stories of reindeer herding, trading hides for flour and sugar at the Igiugig trading post, and the shock of seeing a white person for the first time

[3] While some scholars refer to the Yup'ik language as *Yugtun* or *Yugcetun*, in Igiugig they generally use *Yup'ik* to refer to their language.

(Gram-Hanssen, 2012; Salmon, 2008). From the start of the 1900s, however, changes happened fast (see Box 2.2.1 below).

Figure 2.2.2 Map of Igiugig. The map shows the Lake Iliamna watershed with an inlay of the State of Alaska. The red dot marks the Village of Igiugig where Lake Iliamna feeds into the Kvichak River. Source: map created by Ross Wetherbee using the 2016 land cover layer from the National Land Cover Database, MRLC.

Box 2.2.1 The 'Settling' of Alaska Natives

The establishment of present-day Igiugig was largely a result of two interlinked processes related to the purchase of Alaska by the United States in 1917.

The socio-political imperative to socialize and educate Alaska Natives resulted in the building of state and residential schools and a decree that all children be given formal education. This forced many families to become sedentary for the duration of the school year (Barnhardt, 2001). While oral history documents the long-term use of present-day Igiugig as a summer fishing camp, the official establishment of the village happened relatively late compared to other villages in the area. The community was established in the 1920s, after the nearby village of Qinuyang (or 'Old Igiugig'), was devastated by the 1919 influenza pandemic (Byrd, 2019). By 1947 when the late Mary Gregory-Olympic moved to Igiugig with her family from Kukaklek Lake, only five families lived in the village on a semi-permanent basis. The Igiugig School was not established until 1967, meaning that until that point children who were of school age were forced to travel to other communities for their schooling (Gram-Hanssen, 2012).

Once oil was discovered on the North Slope of Alaska, land ownership, which to this point had seemed unimportant in a state as large and 'undeveloped' as Alaska, suddenly became a pressing economic and political issue. The Alaska Native Claims Settlement Act (ANCSA), passed in 1971, extinguished all aboriginal claims in exchange for fee simple title to 44 million acres of land, and a one-time settlement of $962.5 million dollars divided among twelve regional and 226 village for-profit corporations established as part of the Act. Village corporations were granted surface rights of a selected area, the size of which was based on the number of residents in the village at the time of the Act. Alaska Natives got automatic enrollment in village and regional corporations depending on their place of residence and received 100 shares of stock to both corporations, making them legal owners of village and regional lands. The Act transformed all Alaska Natives into landowners of particular lands while extinguishing their potential claims to other lands. This further sped up the process of Alaska Natives becoming settled into one place (Case and Voluck, 2012; Summit, 1997).

The community of Igiugig is small, with about 70 year-round residents. The population is relatively young, with roughly one third under the age of 18, and there are slightly more women than men in the community. The majority of community members identify as Yup'ik Alaska Native, which is one of seven distinct Alaska Native cultures. Igiugig is located at the intersection of Yup'ik, Alutiiq and Dena'ina homelands and many community members can trace their ancestry to several Alaska Native cultures. A growing number of residents also identify as Caucasian, which speaks to the increase in people moving to the community from other places in the state or the continental United States from the 1970s and onwards. The community is not on the road system but sits relatively isolated at the mouth of the Kvichak River, among blueberries and alders. Yet, the illusion of isolation is broken by the constant sound of bush planes, outboard motors, four-wheelers and snow-machines. These sounds tell the story of connection and relation. Tundra trails and the lake connect the village to other communities in the Lake Region and the river provides access all the way down to Bristol Bay, where some community members go commercial fishing in the summer. A handful of small-scale airlines provide air service to the regional hub communities and to Anchorage, the largest city in the state.

The governing body in Igiugig is the Igiugig Village Council (IVC), which is a federally recognized tribe and only local government. IVC consists of an elected president, a vice president and three council members. Besides governmental activities, IVC maintains and oversees village infrastructure, including water, electricity, roads and public buildings, and provides fuel, gasoline and heating oil for all households. IVC also oversees larger scale construction projects and several grant programs focusing on community development and wellbeing (Igiugig Village Council, n/d). The 66,000 acres on which Igiugig sits are managed by the Igiugig Native Corporation (INC), established in 1971 as part of the Alaska Native Claims Settlement Act (ANCSA) (Igiugig Village Council, n/d). Sitting on the banks of one of the world's most important sockeye salmon rivers, INC generates some of their revenue from land use fees paid by tourist lodges and sport fishermen. Some of this revenue goes into purchasing private property along the riverbank to increase the INC land-base (Igiugig Village Council, n/d). In order to ensure that ownership of the land is extended beyond the generations alive at the time of ANCSA, many community members have gifted shares to children and grandchildren born after 1971, who otherwise are not considered legal landowners.

The community of Igiugig is continuously working to enhance its self-determination and self-sufficiency as well as the wellbeing of its inhabitants (Alaska Venture Fund, n/d; Igyararmiut et al., 2021) (see Box 2.2.2 below for some examples of these efforts). This work, and the success of their efforts, in many ways provides a counter-narrative to the troubling statistics that so clearly show the damaging effects of centuries of colonization on Indigenous people across Turtle Island (Sequist, 2021). For instance, compared to the overall U.S. population, Alaska Native and Native American individuals are twice as

likely to live in poverty (26%), be unemployed (30%), lack access to health insurance (21%), and not have completed high school (20%) (US Census Bureau, 2017). Among other things, this contributes to poor health among many Alaska Natives and Native Americans who are more than twice as likely than the overall U.S population to be disabled (16%), have diabetes (15%) and die by suicide (11 deaths per 10,000 women) (Villarroel et al., 2020). It is increasingly recognized that the health crisis among Alaska Natives and Native Americans is simultaneously a deeply cultural crisis rooted in colonization (Elliott, 2020; Napoleon, 1996). In view of the challenging context of Alaska Native and Native American communities, a community that not only diverge on most of the above statistics, but does so from a place of enhancing self-determination, self-sufficiency and wellbeing is a most relevant case for exploring and theorizing deliberate transformations towards sustainability.

Box 2.2.2 Examples of Igiugig's Efforts to Enhance Self-Determination, Self-Sufficiency and Wellbeing

In Igiugig, the aims of enhancing self-determination, self-sufficiency and wellbeing are infused in largely all aspects of community life, including energy, food, economy, education and governance (Alaska Venture Fund, n/d; Gram-Hanssen, 2012; Igyararmiut et al., 2021). They are also central in all decision-making, from the strategic planning of IVC to the day-to-day decisions and actions of individuals. While this focus is not new in this community, community efforts have become increasingly strategic and deliberate over the course of the past two decades.

Examples of these efforts include the shift from relying on fossil fuels to experimenting and investing in renewable energy, including an innovative river turbine that has the potential to enable the community to draw all their energy from the river (ORPC, 2020). This means a shift from high cost and low control to low (long-term) cost and high control. A similar shift is happening in the community's food systems, where high reliance on store bought foods and low access to fresh produce, which is seen to be part of a general 'nutrition transition' among Indigenous groups across the Arctic with increased reliance on processed foods (Kuhnlein et al., 2004), is being shifted by way of a local produce production program, including several greenhouses and vegetable gardens in the community. This is coupled with a continuous emphasis on the skills and values associated with living off the land, including hunting, fishing and gathering. Besides enhancing food security through local access to affordable and healthy foods, there is also an important cultural component to this work, reconnecting people to the lands and waters that provide for them and that they in turn care for (Byrd, 2019; Jakober, n.d.).

Shifts are also happening in the community's institutions, including the school and the land corporation (INC). These institutions were established by the United States government as part of the settler-colonial efforts to shape Alaska Native citizens in the Western image. While hugely important for Alaska Native's ability to participate in Western society, formal education (as it was conceptualized and performed during most of the 20th century) and land ownership are largely at odds with Alaska Native worldviews and lifestyles (Berger, 1985; Summit, 1997). In Igiugig, these institutions have been shaped to better align with the values and cultural practices of the community (Gram-Hanssen, 2018). In the context of the school, this includes bringing Elders into the classroom and bringing students out on the land as part of creating a culturally appropriate curriculum. Efforts to 'go back' to a time before these institutions were in place are not seen as feasible nor desirable. Rather, how to shape them into institutions that enhance the values and vision of the community is what matters. This is exemplified by INC using land use fees to purchase private property for the benefit of current and future generations of Igiugig residents and shareholders.

Figure 2.2.3 The Village of Igiugig on the banks of the Kvichak River (Photo by © Nathaniel Wilder, 2021)

Figure 2.2.4 The Igiugig dance group, Makuryat Yurartet (Photo by © Nathaniel Wilder, 2021)

Figure 2.2.5 Addi, Mavrik and Luke enjoying summer in Igiugig (Photo by © Nathaniel Wilder, 2021)

Figure 2.2.6 Sockeye Salmon hanging in the smokehouse in Igiugig (Photo by Author, 2017)

3. THEORETICAL ANCHORING

3.1 Deliberate Transformations Toward Sustainability

Within the landscape of transformations research, I center my inquiry on the notion of *deliberate transformations toward sustainability;* namely, transformative change that is directed and anticipatory and that has the explicit aim of enhancing sustainability. I have been drawn to this particular angle on transformations research due to the perspective's explicit focus on the agency of individuals and collectives as the main driving force behind transformations (O'Brien, 2012, 2016). While this does not exclude the significance of nonhumans, it points to the unique possibility and responsibility of humans in co-creating sustainable futures. At the time of commencing my doctoral work, I had already collaborated with the community of Igiugig on issues of community sustainability (Gram-Hanssen, 2012), and the focus on deliberately engaging in transformations resonated well with this previous work (see *Section 2: Background*). Below I describe the theoretical components to the notion of deliberate transformations toward sustainability and identify it as an integrative approach to the study of transformations that takes into account 'interior dimensions' of change and supports a focus on relations and relationality.

Deliberate transformation is understood as radical changes happening in social-ecological systems, directed by people and groups in a conscious effort to fundamentally change current systems and practices towards increased sustainability (Feola, 2015; Moore et al., 2014; O'Brien, 2012). Drawing on both systems thinking (Meadows, 1999) and leadership development (Sharma, 2007), human geographer Karen O'Brien (2012, p. 670) defines the process of transformation as "physical and/or qualitative changes in form, structure or meaning-making" as well as "a psycho-social process involving the unleashing of human potential to commit, care and effect change for a better life." Deliberate transformation is thereby not only concerned with the changes that happen 'out in the world,' but recognizes that all such changes are rooted in the human ability to change and to take a different perspective on change. Informed by psychological and pedagogical concepts, such as Paulo Freire's (1970) conscientization, deliberate transformation makes room for the creative potentials of humans, centering on transformative capacity rather than (only) adaptive capacity (Ziervogel et al., 2016). According to O'Brien (2012, p. 669), humans are not only "contributing to changes in the earth system, but they are also capable of recognizing, reflecting and consciously taking actions to influence future outcomes." This is further informed by systems theorist Donella Meadows' (2009) leverage points for systems change, where the highest leverage point is identified as the ability to transcend the paradigm one is in, recognizing both what is worth keeping and what needs to change.

The emerging theory of deliberate transformation is thereby guided by an integrative approach to change, recognizing that "a regime shift cannot occur without changing worldviews, institutions, and technologies together, as an integrated system" (Beddoe et al., 2009, p. 2). This literature highlights the importance of 'interior dimensions' of human existence, including beliefs, values and worldviews (Laininen, 2019; Moore and Milkoreit, 2020; Rosenberg, 2021). While addressing pressing issues such as climate change demands changes in biophysical systems, there is growing awareness that such changes are intimately entangled with not only certain practices and societal systems, but importantly also certain ways of understanding and being in the world (Hulme, 2009; Ives et al., 2020; Wamsler et al., 2021). In the context of climate change, for instance, transformations researcher Gail Hochachka (2021, 2019) found that difference in meaning-making results in the simultaneous existence of different *climate changes* and subsequently a range of different responses. Understanding this difference and the action logics they relate to is a prerequisite for finding common ground for adaptative and transformative responses.

Because the deliberate transformation concept places much emphasis on humans' capacity to change, people become crucial in understanding and supporting a transformational process. Although political systems and structures are often seen to pose the greatest barrier to change, this too is made up of individuals and groups that support and maintain the current paradigm, thereby intimately linking political change to personal change. Thus, the deliberate transformations literature does not only bring people 'back in' to the discussion on transformation but places them at the center – not in terms of a human-centric hierarchy of importance, but rather in terms of transformative potential. Deliberate transformation thus emphasizes the agential nature of engaging in change in terms of both potential and responsibility (Sharma, 2007). Our role is not (only) to manage some unruly process but rather to deliberately enact an alternative reality (O'Brien, 2021b).

By recognizing the breadth and depth of the necessary transformations, this kind of research agenda calls for transdisciplinarity and the co-production of knowledge and practice (Page et al., 2016), paying attention to the relationships between transformations happening at and across many different levels, including the personal, organizational and cultural levels (O'Brien, 2012). In the context of both research and practice, this means developing different methods for engagement and bottom-up policy making. Sustainability researcher Andy Stirling (2015) argues that despite, or rather, because of the severity of the climate change challenge and the increasingly smaller window for action, we need democratic processes that find solutions from the bottom-up rather than continuing the top-down approach of expert- and politician-led adaptation. Referring to historic struggles by oppressed peoples, including Indigenous peoples, he argues that "contrary to much received wisdom, it is repeatedly unruly, bottom-up 'transformations' rather than top-down structured 'transitions' (…), that typically

achieve the most profound (sometimes rapid) socially progressive social changes" (Stirling 2015, p. 1). Similarly, geographer Michael Bravo (2009, p. 259) points to the potential benefits of using "civic epistemologies" and frameworks that "put communities back into the calculus of risk and meaning-making." These perspectives do not imply that systems approaches are not useful or that the national and global levels are not significant. Rather, they argue for a 'grounding' of transformations research that focuses on change as it happens in and across places.

Underpinning the conceptualization of deliberate transformation is an understanding of change occurring across different interacting spheres simultaneously. The Three Spheres of Transformation framework (Figure 3.1.1) proposed by Karen O'Brien and Linda Sygna (2013; O'Brien, 2018) acts as a heuristic for thinking about how transformations occur and how to generate transformative results.

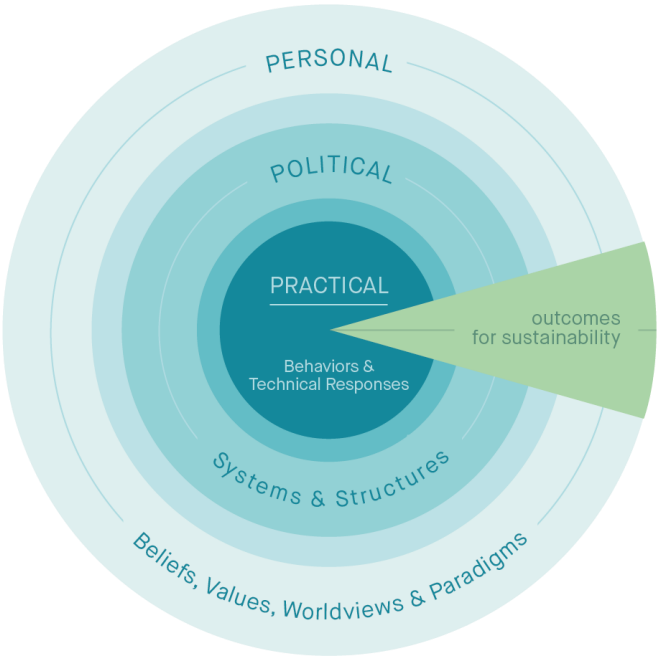


Figure 3.1.1 Three Spheres of Transformation Framework.
The figure shows the practical, political and personal spheres. The cross-cutting arrow symbolizes the need to work across all three spheres to generate transformative outcomes for sustainability. Source O'Brien (2018)

The framework is based on systems thinking, such as the leverage points perspective mentioned above, and the work of Monica Sharma (2007) on the relationship between personal and planetary transformation. Rather than a theory of change, however, the framework can accommodate multiple different change theories. The framework identifies the practical, political and personal spheres as interrelated areas of intervention for societal transformations, arguing that sustainability-related issues cut across all three spheres to varying degree. The practical sphere refers to behaviors and technical responses, such as riding a bike instead of a car or developing renewable energy technology. The political sphere refers to systems and structures, such as political deliberation on funding schemes for renewable energy transitions. The personal sphere refers to individually and collectively (culturally) held beliefs, values, worldviews and paradigms, such as the paradigm of a circular economy or valuing

and prioritizing the wellbeing of future generations. While all three spheres carry their own importance for transformations, an assumption of the framework is that the personal sphere of values and worldviews tend to shape processes and outcomes in both the political and practical spheres. Therefore, the personal sphere is seen as a particularly potent leverage point for sustainability transformations, for instance through critically examining and questioning assumptions and mechanisms that inform predominant discourses and practices (Manuel-Navarrete and Pelling, 2015).

The framework is integrative through insisting on a holistic understanding of transformation. An explicit assumption of the framework is that paying attention to only one or two of the spheres will be insufficient to generate equitable sustainability transformations. While represented visually as three separate spheres with clearly defined borders, the framework recognizes the intra-active nature of the spheres (Barad, 2007), meaning that they co-constitute each other and are synergistic (O'Brien, 2018).

While useful as a heuristic, the framework also invites many questions. For instance, transformations researcher Stephen Woroniecki et al. (2022, p. 3) reflect on how to "hold together the personal, political and practical dimensions of transformation in a coherent way." While I have not engaged explicitly with the Three Spheres framework in any of my articles, it has inspired me to similarly inquire into this co-constitutive nature of change. Like Woroneicki and his colleagues, I have wondered how to account for the co-constitutive nature of transformations and the relationality of the intra-acting spheres. As I show in this dissertation, such questions call for an understanding of relations that is able to hold a both/and space of simultaneity. Below I outline this theoretical positioning, first by situating myself within the relational turn in human geography and the social sciences more generally, and secondly by specifying a 'deep' relationality that draws on Indigenous and posthumanist ontologies.

3.2 The Relational Turn: How Deep Do Relations Go?

Across the social sciences and humanities, researchers are increasingly turning to relations as a lens through which to understand society and the potential for sustainability. This is part of what is referred to as 'the relational turn' in the social sciences, most notably in sociology (Abbott, 2020; Dépelteau, 2018; Emirbayer, 1997; Powell, 2013), psychology (Gergen, 2011; Sugarman and Martin, 2011) and human geography (Allen, 2012; Glückler and Panitz, 2021; Jackson, 2006; Jones, 2009). In the context of human geography scholarship, the importance of relations has been front and center for decades with the relational theorization of central concepts such as space, place, scale and network (Jones, 2009). Besides a recognition that relations matter for understanding geographical difference, relational thinking within the discipline generally refers to "an understanding of social phenomena as being constituted by social interactions that are situated in a structure of relations and contextual meaning" (Glückler and Panitz, 2021, p. 1532). Thus, rather than viewing entities, structures or agents

as existing independently of each other, they exist and are given meaning through relations and context.

Space and place as relational are central tenets of contemporary human geographical thought (Pierce et al., 2011). To 'think space relationally', human geographers departed from the debate of absolute versus relative space by rejecting any form of special totalities and dissolving the boundaries between objects and space, instead envisioning "a perpetual becoming of heterogeneous networks and events that connect internal spatiotemporal relations" (Jones, 2009, p. 491). The writings of human geographer Doreen Massey (2006, 2005) have been especially important for this theorization. Rather than space existing as an external entity, Massey (2006, pp. 89–90) argues that space is "an on-going production" created through "practices, relations, connections and disconnections (…) at all scales, from the intimate to the global." According to human geographer Martin Jones (2009, p. 492), "the spatial project for relational thinkers" is to exchange dualistic theories with relational theories that understand "space, place and politics as encountered, performed, and fluid." In the context of both place, space and scale, this has led to an articulation of a 'flat ontology' in which interactions are seen to occur across both localized and non-localized 'event-relations' that "avoid the predetermination of hierarchies or boundlessness" (Marston et al., 2005, p. 424). These articulations thus attempt to rid geographical theorizing of deterministic, dualistic and hierarchical assumptions in order to better account for the performed and emergent nature of the social.

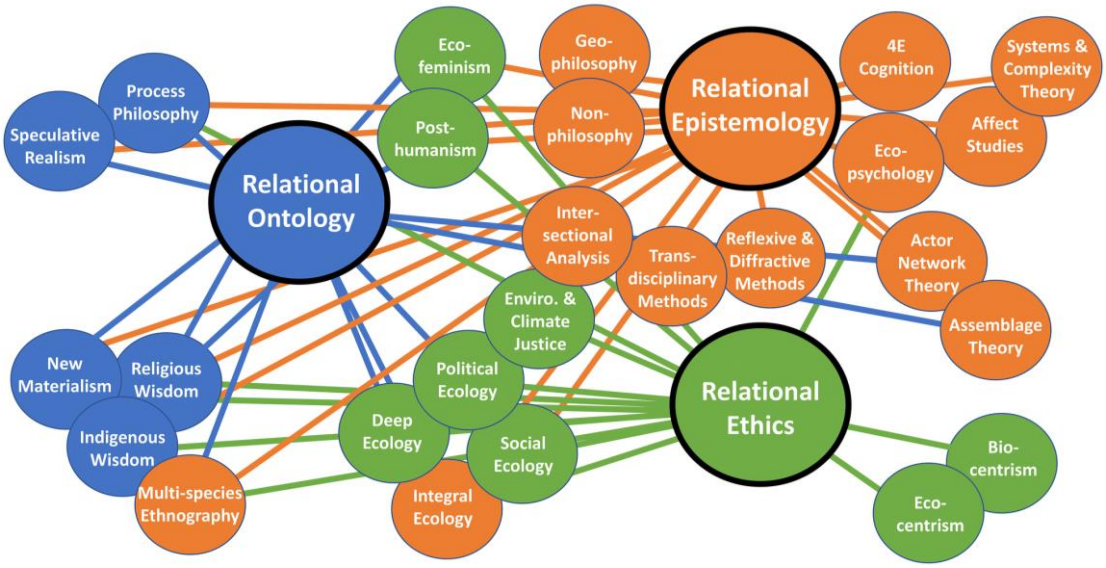
Among human geographers, actor-network theory (ANT) (Latour, 2007) and assemblage thinking (DeLanda, 2006) have become some of the preferred analytical approaches for understanding the relational and co-constitutive nature of environment-society phenomena (Anderson et al., 2012; Bosco, 2006). While distinct, the two approaches share a focus on relations rather than entities, combating dualisms such as human-nonhuman and micro-macro, emphasizing materiality as agential and the processual nature of the socio-material (Müller, 2015). ANT has especially been used to theorize nonhumans as agential and actively contributing to the constitution of the social (Bennett, 2018), while assemblage thinking has helped put focus on process and emergence and the fragile and flexible nature of social constellations, such as the state (Allen and Cochrane, 2010). Both approaches emphasize emergence and openness, "instating that phenomena do not have to be a particular way just because they are a particular way" (Müller, 2015, p. 32).

These approaches have also been critiqued, however, for not accounting for "the relational production of difference and inequality" within a world of fluidity (Kinkaid, 2020, p. 465) and thereby overlooking issues of power (Brenner et al., 2011). In order to counteract this potential challenge, some scholars combine the notion of assemblages and actor networks with a relational perspective on place. For

instance, grounded in human geography and science and technology studies, feminist political ecologist Dianne Rocheleau (2016) draws on ANT and assemblage thinking to propose the notion of a 'poststructural rooted network,' showing how beings and things are bound together in a web of relations that are rooted in place. She suggests that this 'networked vision' can be used as an 'eclectic tool' to help "'make sense' of complex assemblages of humans, other living beings, and their things, their surroundings, and technologies from distinct subject positions and diverse knowledge perspectives" (2016, pp. 220–221). According to human geographer Padini Nirmal (2016, p. 232), the idea of rooted networks "reminds us that the worlds we inhabit are indeed alive (as living worlds of animate and inanimate beings), and that networks are not floating threads of connection but are in fact rooted in place and central to the livingness of worlds."

Relations are also central in sustainability science and transformations research. Scholars within these fields draw on many of the same theories as do human geographers, and both ANT and assemblage theory are gaining prominence in research on sustainability transition and transformations, for instance in order to account for nonhuman agency (Contesse et al., 2021), cross-scalar relations (Grandin and Haarstad, 2020) or the instability of transformative change (Wanvik and Haarstad, 2021)[4]. However, as Walsh et al. (2021) show, ANT and assemblage thinking are only two of a diverse palette of theoretical approaches that sustainability researchers draw on to account for the relational nature of social-ecological change. In their review article, they map out twenty-six relational discourses that are drawn upon in sustainability research, practice and education (see Figure 3.2.1 below).

Figure 3.2.1 Tanglegram of Relational Discourses Within Sustainability Science. The discourses are organized according to their center of gravity in terms of ontology, epistemology and ethics. Source: Walsh et al. (2021)



[4] Although see Jordhus-Lier et al. (2021) for a critique of the use of assemblage thinking in the study of energy transitions.

Despite considerable convergence and overlap, each of these discourses have their own aim and theoretical anchoring. Thus, relationality within sustainability science is more accurately thought of as an emerging field rather than any one specific approach.

Within this diversity, however, sustainability researcher Simon West et al. (2020) identify four themes that cut across the relational turn in the social sciences and that have implications for sustainability research: 1) The world is perceived as being in a state of perpetual becoming, meaning that action always comes before entities rather than the other way around. 2) Experience arises through embodiment, meaning that knowing is entangled with doing. 3) Language and concepts need reconstruction to allow for this processual and relational understanding. 4) And ethics are always present, making it necessary to develop practices of care and to reflect on the process of doing.

The emphasis on embodiment and doing is visible in a growing body of work that front questions of place (Brown et al., 2019; Grenni et al., 2020). For instance, sustainability researcher Sara Grenni et al. (2020) draw on relational understandings of place in their articulation of a theoretical framework for understanding sustainable 'place-shaping'. They find that while there is a growing focus on the 'interior dimensions' of transformation, such as values and worldviews, as well as the role of sense of place for sustainability, these literatures are not yet well connected. The authors describe both values and sense of place as emerging from interactions between people and their environments and suggest that an integration of these perspectives can provide a relational framework for investigating how place-values can be potential drivers of place-based sustainability transformations. Viewing place-shaping as a relational process, they find that such shaping is involved in connecting phenomena and scales otherwise seen as separate, such as nature and society and the local and the global.

Thus, relations and relationality is increasingly important for social science researchers, including those that focus on sustainability transformations. Yet, what does relationality imply? In the context of economic geography, Henry Yeung (2005, pp. 37, emphasis in original) found that much relational scholarship tends to be "relational only in a *thematic* sense, focusing on various themes of socio-spatial relations without theorizing sufficiently the nature of relationality and its manifestation through power relations and actor-specific practice." While the study and theorization of relations has developed tremendously since this observation was made, sociologists Peeter Selg and Andreas Ventsel (2020, pp. 16–17) find there to be a persistent and noticeable "ambiguity of the qualifier 'relational'" as it is applied across various social science disciplines. Qualifying relationality is a matter of ontology, as it depends on what has ontological primacy (Simpson, 2016). Several social science scholars have suggested a distinction between theories and approaches that understand relations as important but ultimately secondary to entities, and theories and approaches that take relations and the process of

relating to be ontologically prior to entities (Dewey and Bentley, 1949; Selg and Ventsel, 2020; West et al., 2020). While most contemporary theorization within sustainability science recognizes the importance of relations and the problematic assumptions of a positivist, modernist worldview, much such theorization has been found to ultimately be locked into hidden 'substantialist' assumptions, for instance through language such as coupled social-ecological systems (West et al., 2020). According to West et al. (2020), the insistence on separating out 'entities', such as 'resource units' and 'resource users' in the context of environmental governance, reduces the complexity such research is able to convey, thus potentially limiting the effectiveness of the proposed interventions.

In developing a relational approach for studying the role of relations in deliberate transformations toward sustainability, I have been inspired by the notions offered by the above scholars. Yet, as I have aimed to take a 'deep' relational approach, I have prioritized ontological positionings that take relations to form the foundation of reality rather than being an attribute of it. Specifically Indigenous and posthumanist ontologies, to which I turn below.

3.3 'Deep' Relationality Through Indigenous and Posthumanist Ontologies

Informed by the perspectives of my collaborators in Igiugig, I have drawn substantial inspiration from scholarship within Indigenous studies and Indigenous geographies on the nature of relations and the relationality of nature as articulated by Indigenous scholars from across Turtle Island (for instance, Alfred, 2009; Cajete, 2000; Deloria Jr, 1979; Harris and Wasilewski, 2004; Kawagley et al., 1998; Little Bear, 2000; Simpson, 2011; Watts, 2013; Wildcat, 2005; Wilson, 2008)[5]. While I recognize the important cultural, historical and geographical differences between the various Indigenous Peoples of Turtle Island, I follow other scholars who base their notions of 'Indigenous ontologies' or 'Indigenous methodologies' on a sense of the common foundation from which these perspectives arise (Cajete, 2000; Little Bear, 2000; Louis, 2007; Wilson, 2008).

Blackfoot scholar Leroy Little Bear (2000), for instance, describe how Indigenous ontologies (or what he refers to as Aboriginal philosophy) view existence as consisting of energy in constant flux rather than stable matter. Energy congeals and disburses through spatially defined interrelationships among and between beings imbued with spirit. In the worldviews and paradigms that derive from such ontologies, relationships are of outmost importance (Cajete, 2000; Watts, 2013; Wilson, 2001). Drawing on the Creation histories of her people, Haudenosaunee and Anishinaabe scholar Vanessa Watts (2013) relates how every being comes into this world already in relation and is given meaning

[5] While centering on the context of Turtle Island, I recognize the alignment between these writings and scholars in other cultural and geographical contexts, such as Aotearoa (e.g., Smith, 2014, 1999), Australia (e.g., Bawaka Country et al., 2016, 2013), South Africa (e.g., Chilisa, 2020; Chilisa et al., 2017) and Northern Europe (e.g., Kuokkanen, 2007).

through its relations. Working with research methodology, Cree scholar Shawn Wilson (2001, p. 177) describes how, "it is not necessarily an object that is important, it is my relationship with that object that becomes important." Thus, in an Indigenous epistemology, he concludes, "relationships are more important than reality." Ontologically speaking, then, relationships form the foundation *for* reality.

In Indigenous ontologies, relationships are never merely abstractions but always grounded in the physical world of places and bodies. To be Indigenous is "to be of place" (Deloria Jr and Wildcat, 2001, p. 31). This is informed by a non-dualistic understanding of being, which challenges the dualisms of being-knowing, subject-object, human-nonhuman. Little Bear (2000) explains how Indigenous ontologies do not distinguish between animate and inanimate entities but perceive all entities as animate. As he reflects, "If everything is animate, then everything has spirit and knowledge. If everything has spirit and knowledge, then all are like me. If all are like me, then all are my relations" (2000, p. 78). Having spirit and knowledge also implies having agency. As other aspects of Indigenous ontologies, this agency too is relational. Watts (2013) explains the ways in which humans and other beings are bound to the lands and waters by which they reside and that they gain the ability to think and act from this relationship. This lays the foundation for an understanding of being and knowing as intimately related, prompting Watts (2013, p. 21) to offer the notion of Place-Thought, which she describes as a "non-distinctive space where place and thought were never separated because they never could or can be separated."

Many aspects of relational Indigenous ontologies resonate with posthumanist and feminist scholarship from within the social sciences that are informed by non-dualistic and non-deterministic metaphysics (Barad, 2007; Bennett, 2010; Braidotti, 2019; Ferrando, 2012; Haraway, 2016; Zanotti, 2020). While the meaning of the term posthumanism is contested (Ferrando, 2013), I follow feminist political ecologist Junita Sundberg (2014) in understanding posthumanism as an umbrella-term that encompasses a diverse body of work primarily situated within Anglo-European philosophy. What this scholarship has in common is a decentering of the human (especially the Western, white, heterosexual man) and an articulation of non-dualistic ways of apprehending and theorizing the world through the non-separation of animate/inanimate (Haraway, 2016), material/discursive (Barad, 2007), and inner/outer worlds (Ferrando, 2016). Posthumanism contributes toward a 'deep' relational approach by focusing on processes of becoming, performativity and entanglement. These theoretical constructs speak to the ontological stance that "attends to emergent becoming rather than substantive being" (Simpson, 2016, p. 160). Thus, phenomena *are* not, they *become*. Human geographers, such as J.K. Gibson-Graham (2008) emphasize the performativity of becoming, or what they refer to as 'world-making'. This perspective assumes that rather than certain societal and cultural conditions being a 'natural' result of inevitable processes somehow happening to the world, change or the lack of change

is instead the result of distinct subjectivities and activities being performed in particular ways, deliberately or not.

The term 'intra-action', coined by feminist and theoretical physicist Karen Barad (2007), speaks to the ways in which this becoming is an entangled process. As opposed to 'interaction', 'intra-action' implies that phenomena are not separate to begin with but always already entangled and that action always occurs within these entanglements. Along with other posthumanist terminology, 'intra-action' provides a vocabulary for 'seeing together what is otherwise perceived as separate' (Dewey and Bentley, 1949). This has implications for understandings of agency since rather than acting *on* a phenomenon, as is implicit in positivist realism, or acting *between* phenomena, as is assumed within a social constructionist account, 'intra-action' implies acting *with* and *within* phenomena in a continuous process of co-becoming. According to Barad (2007, p. 23), this implies that "it is less that there is an assemblage of agents than there is an entangled state of agencies". In a posthumanist ontology, both meaning and matter is seen as agential through how they intra-act to co-create the world (Barad, 2007; Bennett, 2010).

Indigenous and posthumanist ontologies align in offering a strong sense of the responsibilities involved in a world of relations. The notions of becoming, performativity and entanglement imply that we are always involved in 'world-making'; we literally "cannot help but participate with the world" (Cajete, 2000, p. 26). However, as Tewa scholar Gregory Cajete (2000, p. 26) asserts, "whether we acknowledge and are creatively open to perceptions that will result [from this participation], or remain oblivious to its influence and creative possibilities toward deeper understanding, is our decision." This points to issues of ethics and responsibility. Responsibility is one of four concepts that, along with relationship, reciprocity and redistribution, is offered by Comanche scholar La Donna Harris (2004) as being foundational to Indigenous ontologies. Based on the notion that all beings are agential and connected as relatives, Harris defines responsibility as "the community obligation" to "care for all of our relatives" (2004, p. 492). In posthumanist scholarship, ethics and responsibility is also seen to be a central implication of a relational ontology through the notions of entangled co-emergence. As Barad (2007, p. 393) asserts, "ethics is therefore not about right response to a radically exterior/ized other, but about responsibility and accountability for the lively relationalities of becoming of which we are a part." By embracing the notion of entanglement, international relations scholar Laura Zanotti (2020, p. 10) suggests, "our conceptualizations and justification of ethical agency radically changes in a way that embraces practices and raises the bar for adjudication of ethico-political choices, while at the same time broadening the possibilities for human agency to bring about change." Viewing change as occurring through a continuous process of entangled co-becoming, what we do literally *matters* (O'Brien, 2021b).

Responsibility is also a central theme in relational geography, for instance through the writings on 'geographies of responsibility' and 'geographies of care' (Darling, 2009; Massey, 2006, 2004; McEwan and Goodman, 2010; Middleton and Samanani, 2021; Popke, 2009, 2007). Part of a 'moral turn' in human geography, this scholarship emphasizes the heightened sense of responsibilities that arises from a relational understanding of the social. Referring to the perceived inability of the human mind to account for all relations at every moment, Massey (2006) argues that this 'cognitive accounting' is not what is of importance. "Rather, what is at issue is an *attitude*, the scaffolding of one's self-conception, a stance in relation to the world (…), an openness to a wider engagement with the world; an outwardlookingness" (2006, pp. 93, original emphasis). Speaking to the tension between responsibility to 'distant others' and those within our close circles, Massey (2006, pp. 93, emphasis added) argues that it is through "an *awareness* of the planet-wide configurations of trajectories, lives, practices … into which we are set and through which we are made," that we may begin to prioritize our actions of responsibility. For human geographer Jonathan Darling (2009), there is no real tension between local and global responsibilities. Drawing on Massey, he sees responsibility arising "precisely through both such moments of embodied encounter, and the ways in which moments of political demand and negotiation help to constitute the connections to which we are responsible" (2009, p. 1949). In my understanding of responsibility, I am also inspired by the notion of 'response-ability', referring to an ability for responsiveness based on an understanding of entangled relations and a commitment to the possibilities of the future (Barad, 2007; Haraway, 2016). There is a growing awareness among sustainability researchers as to the potential points of convergence between relational notions of care and response-ability and the call for transformations that are equitable and just (Moriggi et al., 2020).

A further element that helps comprise the 'deep' relationality of my theoretical approach, is the notion of potentiality. Here I lean on posthumanist and other relational theorists who draw on concepts from the natural sciences. Recognizing the limitations of theorizing space as all process and no substance, Jones (2009) offers the 'ensemble ontology' of 'phase space' for human geography theorizing. Taken from dynamical systems theory in mathematics, 'phase space' describes a four-dimensional space in which all possible spaces exist in theoretical terms. As a 'space of the possible' phase space "acknowledges the relational making of space but insists on the confined, connected, inertial, and always context-specific nature of existence and emergence" (2009, p. 489). According to Jones, this makes room for both 'flow-like' and more fixed understandings of space, containing both what happens and what might happen.

Similarly, drawing on quantum physics, international relations scholar Alexander Wendt (2015) employs the notion of a wave function of potentiality to describe a world of becoming with material

consequences. In quantum physics, wave functions are potential realities, describing the probability of finding a certain property in a certain position. “The wave function is a *complete* description of a quantum system, until its measurement, at which point it ‘collapses’ and just one, classical outcome is observed” (Wendt, 2015, pp. 3, emphasis in original) Thus, when the wave function collapses, potentiality is transformed into an outcome that we perceive of as reality. Wendt goes on to speculate that rather than discrete entities with a limited set of capabilities, humans might be better understood as ‘walking wave functions’ of potentiality that intra-act within the world. Taken to transformations research, O’Brien (2021b, p. 59) suggests that the notion of potentiality and related quantum concepts “draw attention to the many equitable and sustainable alternatives that exist and can be ‘collapsed’ into reality, right here and now.” As she further reflects, this “gets us thinking about our agency and potential to act in time to make a difference. To really matter” (2021b, p. 1).

In thinking through what my research gains from the above insights, I align with international relations scholars Arlene Tickner and Amaya Querejazu (2021) who draw on Indigenous Andean thinking to articulate a deep relationality that centers on interdependence, co-becoming and both/and logics. They find that “deep relationality, as practiced by scores of peoples across the globe, is a useful way to talk about worldly affairs in a more profound sense of how we exist in and with the world, how we relate, and, ultimately, how we create our worlds” (2021, pp. 404–405). In this way, a ‘deep’ relationality can “awaken [our] relational sensibilities” (2021, p. 391).

More specifically, a ‘deep’ relationality informed by Indigenous and posthumanist ontologies has provided me with a non-dualistic theoretical perspective on deliberate transformations toward sustainability that takes into account both issues of justice and agency. This has enabled me to focus on the processes involved in developing certain relations, structures and perspectives. The emphasis on non-duality is especially evident in **Articles 3** and **4** where I lean on a ‘deep’ relationality to be able to articulate a non-dualistic understanding of individuals/collectives (**Article 3**), local/global and self/world (**Article 4**). Through an explicit centering of the responsibilities involved when being in relation, a ‘deep’ relationality helps front questions of ethics in processes of deliberate transformation. Sustainability transformations can be guided by a certain sense of care and of the importance of every action and inaction for the co-creation of the whole. This perspective is especially present in **Article 5**, where my co-authors and I draw on Indigenous relationality and decoloniality to articulate an approach to studying and furthering sustainability transformations grounded in ‘right relations’. It is also present in the remaining articles (**Articles 1, 2, 3, 4**) through paying attention to the importance of how relations are performed in the community and the results of a certain quality of relations for what outcomes are generated. Finally, the notion of potentiality has informed my understanding of the

transformative world-making happening in Igiugig, including through my investigation of how certain narratives co-create certain outcomes (**Article 2**).

3.4 Working with Multiple Ontologies: Two-Eyed Seeing

As outlined above, there are significant points of convergence between Indigenous and similarly 'deep' relational positions within the social sciences, such as posthumanism. Especially the points of convergence and divergence between Indigenous relationality and new materialism has been explored in recent years by both Indigenous and non-Indigenous scholars (Clary-Lemon, 2019; Eglash et al., 2020; Kerr, 2019; Ravenscroft, 2018; Rosiek et al., 2020; Rosiek and Snyder, 2018). As these and other scholars rightly point out, the lack of acknowledgement of the indebtedness of new materialisms to Indigenous formulations of non-dual and non-anthropogenic ontologies is striking. Most posthumanist scholarship cites scholars such as Bruno Lateur and Gilles Deleuze, while Indigenous philosophers and scholars remain invisible (Ravenscroft, 2018; Sundberg, 2014; Todd, 2016). Some scholars explicitly recognize that while posthumanism and new materialism is perceived as new within certain fields and discourses, in fact they most often indicate a return. In the context of cultural geography, for instance, Sarah Whatmore (2006, p. 601) uses "the language of returns to suggest that what is new (as in different) about the something/happening in cultural geography is a product of repetition – turning seemingly familiar matters over and over, like the pebbles on a beach – rather than a product of sudden encounter or violent rupture."

Despite this reflective scholarship, Sundberg (2014) identifies a tendency of posthumanism as performed within geography to omit an explicit recognition of its particular location. She describes how the modernist ontological assumptions that posthumanist scholarship works to destabilize (e.g., human primacy, dualities of subject-object and human-nonhuman) are often perceived as being universal, without recognizing the existence of other ontological frameworks and knowledge systems. This "enacts Eurocentric theory as universal, the only body of knowledge that matters" (2014, p. 36). A related challenge is that once Indigenous thinkers do get cited, their insights and stories are often used out of context and without recognition of the entangled nature of thought and place within Indigenous ontologies (Watts, 2013). While most posthumanist theorizing is exceedingly theoretical (despite emphasizing the importance of *doings* through concepts such as performativity), Indigenous ontologies are derived from experience. This implies that theoretical and conceptual insights are always grounded in the *experience* of being rather than the *concept* of being. As Watts (2013, p. 22) points out, "Frameworks in a Euro-Western sense exist in the abstract. How they are articulated in action or behavior brings this abstraction into praxis; hence a division of epistemological/theoretical versus ontological/praxis." This stands in contrast to many Indigenous ontologies, where "it is impossible to separate theory from praxis." Importantly, however, Watts (Ibid.) reminds us that "it is

not that Indigenous peoples do not theorize, but that these complex theories are not distinct from place."

Despite these challenges, a growing number of Indigenous and non-Indigenous scholars are highlighting the potentially impactful results coming from working across Indigenous and non-Indigenous relational ontologies (Elwood et al., 2019; Fazey et al., 2020; Johnson et al., 2016; Kimmerer, 2012; Lam et al., 2020a; Rout and Reid, 2020; Whyte et al., 2016). Weaving work can be done in awareness of how the political and ontological is entangled and requires that we "unlearn (…) the single ontology of politics" (Cadena, 2010, p. 361). Drawing on political science and philosophy, Marisol De La Cadena (2010, p. 360) proposes a reconfiguration of the political by way of 'pluriversal politics' that not only recognizes other perspectives on what matters as political but "includes the possibility of adversarial relations among worlds". The notion of the pluriverse draws in part on the Zapatista movement, which calls for a world in which 'many worlds fit' (Holas Allimant and Demuro, 2020). According to Blaser and De La Cadena (2018, p. 4), the pluriverse implies "heterogeneous worldings coming together as a political ecology of practices, negotiating their difficult being together in heterogeneity." As non-Indigenous researchers working with Indigenous communities and/or ontologies, this implies being present through listening, learning, and walking with Indigenous people (Gram-Hanssen et al., 2021; Sundberg, 2014).

In thinking about and approaching the challenge of 'ontological bridge building' (Gram-Hanssen, 2021), I draw inspiration from what Mi'kmaw Elder and scholar Albert Marshall has referred to as Two-Eyed Seeing (*Etuaptmumk* in Mi'kmaw). Two-Eyed Seeing refers to "learning to see from one eye with the strengths of Indigenous knowledges and ways of knowing, and from the other eye with the strengths of mainstream knowledges and ways of knowing, and to use both these eyes together, for the benefit of all" (Reid et al., 2021, p. 243). The conceptual framework, which is applied across a range of disciplines and topics (Wright et al., 2019), offers a way to hold multiple perspectives equitably through "an ethic of knowledge coexistence and complementarity in knowledge generation" (Reid et al., 2021, p. 245). Several Indigenous scholars have highlighted the benefits of approaches such as 'weaving', 'bridging' or Two-Eyed Seeing compared to the notion of 'integration', arguing that by seeking to integrate Indigenous knowledge into Western science, the unequal power relation most often results in the former being subsumed into the latter (Ahenakew, 2016; Johnson et al., 2016; Reid et al., 2021). Thus, integration often takes the form of 'grafting' other ways of knowing onto Western ways of being. Cree scholar Cash Ahenakew (2016, p. 323) warns against "the utilitarian risk to all-too-quickly instrumentalize and embrace Indigenous research methodologies as quick-fix solutions to or escapes from deep-rooted and ongoing (neo)colonial thinking." This is problematic for a number of reasons, not least because knowledge in an Indigenous context is not understood as mere 'information' to be

added or detracted at will but as entangled with the knowledge holder and their environment (Watts, 2013).

In taking a 'deep' relational perspective on how relations come to matter in sustainability transformations, I have worked to hold a space where Indigenous and non-Indigenous insights could 'work on me' to inform a "wider, deeper, and more generative 'field of view'" (Iwama et al., 2009, p. 5). However, in the articles where I engage directly with Indigenous ontologies (**Articles 3**, **4**, and **5**), I have chosen to have Indigenous scholarship form my center of gravity. This choice is informed by my feminist and decolonial research commitments, as well as a recognition that as a non-Indigenous scholar who has received my trained within European and North American research institutions, slipping back into Western hegemonic positions is easily done (Sundberg, 2014). With this approach, I have aimed to facilitate a dialogue among ontologies and theories for the purpose of gaining deeper and more actionable knowledge with emancipatory potential.

4. METHODOLOGY AND RESEARCH DESIGN

4.1 Feminist and Decolonizing Approaches to Research

In their meta-analysis of relational studies in human geography, Johannes Glüker and Robert Panitz (2021, p. 1533) find that despite the popularity of relational thinking within the field, it is unclear what methodologies and methods will enable researchers to "capture empirical observations in their relational and spatial context." They suggest connectivity, contextuality and reflexivity as "three criteria for relational analysis to meet the requirements for relational theory building" (Ibid.). Connectivity, contextuality and reflexivity are all central characteristics of feminist and decolonial methodologies, which are the main methodologies informing my work.

I find methodological belonging in feminism through my exploration of differences that make a difference (Haraway, 1992; Barad, 2007) as expressed in alternative narratives of social change that exist outside of the 'public transcript' (El Khoury, 2015; Scott, 1990). Feminist geographical scholarship focuses on the lived experience of human beings and deals extensively with difference and differential positioning (Haraway, 1988), arguing that it is through paying attention to the specificity of agencies and subjectivities that understandings of political action can advance (Kuus, 2019). This draws attention to the political in otherwise 'apolitical' contexts while destabilizing common dualisms, such as agency-structure, subject-object, and local-global. Focusing on what lies on the margins of the grand societal narratives has the potential to create a 'third space' or 'borderland' where different worlds and futures can be imagined and created (hooks, 1989), and where the 'fictional state' of either/or can be exchanged for the lived experience of both/and (Licona, 2005).

These aims and approaches align with my work through my focus on the subjective experiences of transformational change among individuals and collectives from minority populations whose stories and perspectives are rarely heard in discourses on global change and sustainability transformations. I aim to bring nuance to the grand narratives of social change in order to deepen our understandings of transformation and make visible emergent alternatives to current societal trajectories. In focusing on the role of relations in transformation, I work to illuminate the "mutual constitution" (Kuus, 2019, p. 165) of agency and structure, aiming at being "attentive to the micropolitics of context, subjectivity, and struggle, as well as to the macropolitics of global economics and political systems and processes" (Mohanty, 2003, p. 501).

This links closely with decolonial methodologies, which are similarly focused on questioning common assumptions and discourses in ways that dismantle unequal power relations. Decolonial methodologies specifically work to identify and dismantle relations and logics central to colonialism, such as oppression and exploitation. They do so by centering other, non-Western ways of knowing and

letting these ontologies and epistemologies form the foundation for theory and action. My approach to decolonial methodologies is greatly informed by seminal works by Indigenous scholars, such as Ngāti Awa and Ngāti Porou scholar Linda Tuhiwai Smith's "*Decolonizing methodologies: Research and Indigenous Peoples*", in which she "identifies research as a significant site of struggle between the interests and ways of knowing of the West and the interests and ways of resisting of the Other" (1999, p. 2). This book, which has followed me throughout my academic journey, has informed my understanding of how to approach research in a decolonizing frame and how to align my thinking and doing with the people with whom I work. Although written for Indigenous researchers, I have found that the book sheds light on the potentials and responsibilities involved when conducting decolonizing research as a non-Indigenous researcher; "to simultaneously work with colonial and Indigenous concepts of knowledge, decentering one while centering the other" (1999, p. xii). Working from a decolonial perspective is not only about being accountable for my own research practice but to recognize the I am entangled with a collective research community. In another of Smith's writings (2014), she specifies this collective frame, arguing that researchers must recognize their embeddedness within a troublesome research history. This implies that researchers, besides accounting for their own work, must be "accountable for each other's work and for the work of their 'ancestors'" (2014, p. 16).

Indigenous methodological writings lay the foundation for an understanding of being and knowing as intimately related, implying not only that different phenomena are related, but also that ontology is itself related with(in) epistemology and ethics. Watts (2013, pp. 24, emphasis added) writes how the distinction between ontology and epistemology common in Western scientific thinking "removes the *how* and *why* out of the *what*. The *what* is left empty, readied for inscription." This differs fundamentally from Indigenous methodologies, in which there is no real distinction between knowing (epistemology), the known (ontology) and the knower (e.g., the researcher) (Wilson, 2008). Simultaneously, instead of 'ridding itself' of subjectivity in search of an 'objective reality', as has been the aim within positivist science, Wilson (2008) explains how Indigenous methodologies infuse the pursuit of knowledge with values of relationality, respect and reciprocity, understanding that we cannot remove ourselves from the world we are trying to understand. Instead of removing ourselves, this calls for being accountable and responsible for the choices we make while engaging in research. Working to weave Indigenous and sustainability science, geographer and Indigenous studies scholar Jay Johnson et al. (2016, p. 5) identify Indigenous knowledge creation as guided by "spirituality, ethical relationships, mutualism, reciprocity, respect, restrain, a focus on harmony, and acknowledgment of interdependence." Research in an Indigenous perspective is thereby ultimately about relationships. In

thinking about how to approach my research relationally, I have also been influenced by the notion of 'right relations', which is a central concept in **Article 5**.

Feminist and decolonizing methodologies has implications beyond the research process itself and the relationship between the researcher and collaborators in this process. According to social work scholars Leslie Allison Brown and Susan Strega (2005, p. 1), critical, Indigenous and anti-oppressive approaches to research entail "a willingness to explore the emancipatory possibilities of new approaches to research, even when these transgress the boundaries of traditional research and scholarship." This process helps expand academia, making room for different voices and research approaches, for instance through the inclusion of 'Country' as co-author in an academic article, thereby acknowledging the influence and agency of the landscape and nonhuman agents (Bawaka Country et al., 2013). The purpose of this, Brown and Strega (2005) argue, is not primarily for this type of research to be accepted within academia but to altogether transform academia. Some of the scholars working with feminist and decolonizing methodologies, suggest that recognizing the needs and priorities of the community is not enough in itself, but that it should be (and always is) the role of the researcher to actively further these. As geographers J.K. Gibson-Graham and Gerda Roelvink (2010, pp. 342, emphasis in original) argue, "theory has taken on a new relation to action—to understand the world *is* to change it. As a performative practice, academic research *is* activism; it participates in bringing new realities into being." Thus, regardless of whether the intent is to change the situation studied, the mere act of researching it has this affect.

Naturally, this implies a large responsibility for how we engage with our research. According to Barad (2003, p. 828), while such an approach troubles the classical understanding of objectivity (in the sense of *taking out* one's subjective self – what she refers to as *absolute exteriority*), a new form of objectivity emerges, one that is about being responsible and accountable for what we include and exclude in our analysis (what she calls *exteriority within phenomena*). While in a world of inherent relationality, "responsibility is not ours alone," Barad asserts that in fact "our responsibility is *greater* than it would be if it were ours alone" (2007, pp. 394, emphasis added). This also draws from Donna Haraway's (1988, p. 581) idea of 'situated knowledges', that rather than a "conquering gaze from nowhere", we are always located somewhere, and the knowledge claims we make are always partial. Together, these perspectives speak to a reframing of the conventional requirements within a Western positivist scientific paradigm for research to be 'objective', 'replicable' and 'valid'. Instead, they offer a kind of 'relationally responsive standpoint' (Yunkaporta and Shillingsworth, 2020), or what Sisseton Wahpeton Oyate scholar Kim TallBear calls "objectivity in action" (2014, p. 6), 'feminist objectivity' or 'strong objectivity' (TallBear, 2019). Viewing objectivity as taking responsibility for what is included and

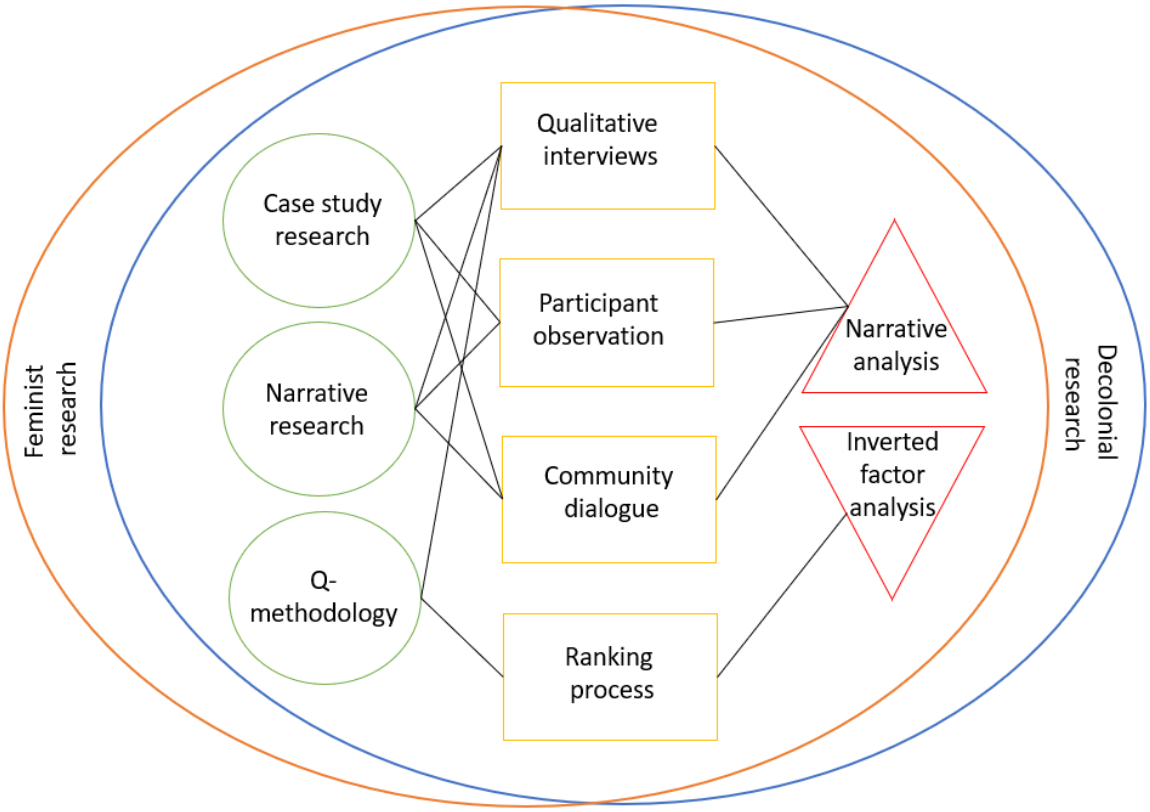
excluded from view, this position "insists on situated knowledges and multiplicity" (TallBear, 2019, p. 494).

The understanding of the inherent entanglement between the knowing, the known and the knower, along with a wish to be grounded in the lived experience of Igiugig community members, has led me to take an abductive approach to my research. Rather than working to test theoretical claims (deduction) or derive theory from observed patterns (induction), my process has been one of simultaneous data generation, data analysis and theorization, "tacking back and forth between the nitty–gritty specifications of empirical data and more abstract ways of thinking about them" (Clark, 2007, p. 424). More concretely, my inquiry is driven by my experience in Igiugig, but my thinking about this experience is influenced by the theories and bodies of work that I have been exposed to throughout the past years as a doctoral student. This is thus a *theory-informed empirical study* aimed at *describing and discussing* the processes, perspectives and conditions identified in the case *for the purpose of theorizing*.

4.2 Methodologies for Studying Change in Place

Grounded in a feminist and decolonial approach to research, my study design is structured around three distinct methodologies: 1) case study research, 2) narrative research and 3) Q-methodology. I have generated empirical data using four methods aligned with one or more of the methodologies: 1) semi-structured qualitative interviews (Kvale and Brinkmann, 2009), 2) participant observation drawing on ethnography (Watson and Till, 2010), community dialogue drawing on community-based participatory methods (Markey et al., 2010) and a ranking process involved in generating '*Q-sorts*' as part of Q-methodology (Watts and Stenner, 2012). I found that these four methods provided me with a grounded and solid process for generating and evaluating data and enabled a form of 'complementary triangulation' (Nightingale, 2020). Additionally, I have used two main methods for analyzing the data: 1) narrative analysis (Wiles et al., 2005) of the qualitative data and 2) 'inverted factor analysis' of the quantitative data (Watts and Stenner, 2012). Figure 4.2.1 depicts the relationship between my methodologies and methods. Below I explain the three methodologies in turn before outlining the research process, including how I applied the methods for data generation and analysis. I have devoted extra space to Q-methodology and the associated ranking process as they are less well known than the other methodologies and methods in this study.

Figure 4.2.1 Methodology and Methods. Relationship between research methodologies (green), methods for data generation (yellow) and methods for analysis (red), centered within feminist (orange) and decolonial (blue) research.



4.2.1 Case Study Research: a 'Kin Study' Approach

The research is designed as a case study. Considering my research questions and my theoretical and methodological commitments, a case study felt like an obvious choice. The case study is "the bread and butter of qualitative work" in human geography (Herbert, 2010, p. 75). While eluding simple definition (Schwandt and Gates, 2017), a case study implies an in-depth investigation of a phenomenon, identifying its unique qualities in a holistic manner, where individual aspects are viewed in the context of the whole study (Ragin and Amoroso, 2010). It is holistic because the social reality that the researcher is attempting to understand is viewed as complex and standing in relation to – or indeed, entangled within – an array of other processes and structures, thus making it necessary to investigate the phenomenon as a whole rather than through a handful of variables. Besides being holistic, geographer Susan Hardwick (2017, p. 1) describes case study methodology as also being nuanced and integrated through taking a multiperspective approach which takes into account perspectives of actors in particular places as well as "the relationships and interactions between and among them."

While the case study is often used to study commonalities by identifying essential features of a case and show how these relate to one another (Ragin and Amoroso, 2010), the case study is also useful in

mixed method contexts where perspectives from the so-called micro, meso and macro levels can be incorporated and juxtaposed (Schwandt and Gates, 2017). Contemporary case studies in human geography tend to focus on phenomena that are on the one hand unique while on the other hand show something general. In this way, the case study exposes the underlying relations and structures that inform the particular expression found in the case (Castree, 2005). Educational scholars, Thomas Schwandt and Emily Gates (2017, p. 354) find that, "Collectively viewed, all case study research exists to address the dialectic that lies at the heart of understanding – an ongoing investigation of the empirical to refine the theoretical and the theoretical to better understand and explain the empirical." While I have 'only' done one case study, my aim has been to identify patterns that are grounded in but not limited to this case, and that may repeat across contexts (see *Subsection 4.5 Assumptions and Limitations* for a few more reflections on this).

My approach to the case study methodology has been informed by the sense of relationality described throughout the previous pages and can be seen as akin to what geographer Anja Kanngeiser and Métis anthropologist Zoe Todd (2020) refer to as 'kin study'. By this term they insist on the specificity of place and culture, drawing on Indigenous notions of the co-constitution of land and knowing (Watts, 2013). They highlight how Western scholars tend to use case studies to instrumentalize place-specific insights to generate universalities and metaphors removed from place and culture. This is problematic from an Indigenous relational perspective since "place and land are shaped by relationships that are not interchangeable" (2020, p. 388). Kin study, on the other hand, is a 'kincentric praxis' (Hourdequin, 2021) that emphasizes attunement and "cultivating a close and generous attention" by *re-placing* the case within specific relations (Kanngieser and Todd, 2020, p. 387). I take this to mean that rather than studying a case of something – as in an object – I am studying relations as they emerge and unfold.

In reflecting on how to proceed with academic research, Kanngieser and Todd draw on Anna Lowenhaupt Tsing's (2015) invitation to practice the "arts of noticing" and Donna Haraway's (2016) call for "staying with the trouble," paying attention to difference and accounting for that which does not fit within the given frame. In conversation with Kanngieser, Todd reflects that "What we need are careful, plural, *hyperlocal* histories to counter the overwhelmingly white, Eurocentric understandings of global warming that erase the devastation facing minoritized communities" (2020, pp. 391, emphasis in original). The notion of kin study thus points to the need for being grounded in place, taking a starting point in the needs and understandings of people's lived experience, and working to further the struggles of said people. All from a place of kinship and relationality.

4.2.2 Narrative Research: Storied Performativity

I have conducted narrative research, meaning that the empirical work I draw from largely consists of Igiugig community members' narratives about change in their community. There are several reasons for this choice. Firstly, drawing on my feminist and decolonial commitments, I take community members to be the experts on their community (Smith, 1999). I find that listening to their stories and perspectives is essential for understanding community change and necessary for ensuring that the research supports community goals. Because of the centering of voices and perspectives of those involved in the research as collaborators, narrative research has the potential to shift power-balance and act as an emancipatory process (Brown and Strega, 2005). Narrative research can also provide a space where the researcher can learn to listen deeply, not only to the words spoken but also to the ontological positioning and 'world-making' of the narrator (Gram-Hanssen et al., 2021). Focusing on narratives of community change and the relations involved in such change processes, I explicitly center my enquiry within the personal sphere of beliefs, values and worldviews (O'Brien and Sygna, 2013). This enables me to pay attention to the 'interior dimensions' of change while also identifying how they are entangled with both political and practical dimensions across scales.

I perceive of narratives as having the capacity to open up or limit solution spaces by creating boundaries for what is legitimate understandings of an issue and acceptable and desirable approaches for engaging with that issue (Riedy, 2021; van der Leeuw, 2020; Veland et al., 2018). Stories and narratives are productive, participatory and 'worlding' interventions that have the potential to open up for new solution spaces as well as new theoretical insights (El Khoury, 2015; Gibson-Graham, 2008). In my understanding of narratives and narrative research, I draw on Indigenous and similarly 'deep' relational social science theorizing which posits narratives and storytelling as intra-acting with the materiality of living places, contributing to their becoming (Barad, 2007; Blaser, 2014; Watts, 2013). As Blaser (2014, p. 54) asserts, drawing on Indigenous scholars such as Cajete (2000) and Wilson (2008), rather than stories being representative of an external reality, "they partake in the variably successful performance of that which they narrate." Thus, Blaser suggests, we can understand narratives as 'storied performativity'.

This storied performance is always tied to place. Drawing on Haudenosaunee and Anishinaabe ontology, Watts (2013) offers the notion of Place-Thought to speak to the inseparability of thoughts, words, actions and place. Relatedly, but coming from science and technology studies, Barad (2007) suggests that narratives be understood as material-discursive practices that are influenced by and influence what is and can be. These perspectives imply that the stories we tell and "the narratives we adhere to 'matter' in real and material ways" (Veland et al., 2018, p. 45). Through our naming of things and concepts – including defining problems and solutions – we 'carve out' a certain reality from where

the next moment's reality can emerge. This makes narrative research a promising methodology for understanding and engaging with processes of change (Rosiek and Snyder, 2018).

The understanding of narratives and stories as agential has implications for the research process. Exploring issues of ethics in Indigenous and new materialist approaches to narrative inquiry, education studies scholars Jerry Lee Rosiek and Jimmy Snyder (2018, p. 3) argue that rather than asking whether or not the story is 'true', we are called to ask "What are we and our stories becoming together? What are we and the story doing?" and "What is our responsibility to the story?" Following my emphasis on community members as experts and being aware of the problematic tendency of non-Indigenous researchers using non-Indigenous concepts to analyze Indigenous contexts and cosmologies (Watts, 2013), in my analysis I have stayed clear of estimating the 'validity' of community members' narratives. Instead, I have focused on engaging with the 'sense-making' they express and how such sense-making is involved in 'worlding' deliberate transformations in the community[6]. A more detailed account of how I see the relation between decolonizing methodologies and narrative research is presented in **Article 5**.

4.2.3 Q-Methodology: Studying Co-Emergence of Individual-Collective Narratives

In order to engage with the subjective viewpoints embedded within community member narratives while staying sensitive to the relationship between individual narratives and larger community narratives, I used Q-methodology to structure my first data generation process (during 2017). Q-methodology is a mixed-method methodology used to examine shared subjective viewpoints on a given topic. It is comprised of qualitative interviews of various degree of structure, a coupled qualitative and quantitative ranking process, and a statistical inverted factor analysis. Since I have described the process of conducting my Q study in Igiugig in **Article 2**, here I mainly focus on the underlying assumptions of the methodology and my reasoning for applying it in my research, while I go into some detail about the analysis in *Subsection 4.3 Research Process and Methods* below.

Q-methodology presents an innovative adaptation of the classical factor analysis. In a conventional factor analysis, *a sample of individuals* is exposed to measurement through a *collection of different tests*, resulting in the comparison of these individuals based on selected traits or criteria (e.g., height). This approach is defined as a *by-variable factor analysis* (Watts and Stenner, 2005). In Q-methodology, the goal is to compare individuals based on "whole aspects of their personality" (Stephenson, 1936, p. 278) and therefore the approach has been reversed; a *sample of tests* is exposed to measurement by

[6] My approach thus differs from more commonly used approaches to narrative analysis within, for instance, literary and communications studies which often focuses on analyzing structural, functional and thematic aspects of the narratives (e.g., Parcell and Baker, 2018).

a *selected group of individuals*. This is called *by-person factor analysis* or *inverted factor analysis* since the individuals are asked to rank different statements in relation to one another based on a specific research question. Rather than being passively measured, the individuals are thereby taking an active role in generating the results by projecting their subjective understanding of the topic onto the statements (Watts and Stenner, 2012).

By ranking the statements relative to one another, the statements are made homogeneous relative to the individual who is doing the ranking. In as far as the sample of statements is sufficiently broad and covers the range of different possible opinions on the topic, the final result presents a complex, but easily comparable picture of an individual's subjective opinion on the given topic at a given moment. Through specialized software, rankings from different people can then be compared using correlation statistics and grouped based on similarities and differences – not based on any one statement or variable but on the relative ranking of statements as a whole. In the subsequent factor analysis, similar rankings are reduced to a couple of central viewpoints that can be viewed as latent factors underlying the complex and qualitatively rich material visible in the ranking of statements. In this way, Q-methodology allows for reductionist and comparable results without eliminating the qualitative richness that gives nuance and meaning to the given opinion type (Watts and Stenner, 2012).

Most Q studies, including mine, follow seven steps (Sneegas, 2019, p. 3):

1) Identifying a topic of study
2) Generating a selection of statements representative of the potential opinions on the topic (in Q studies this is called a *concourse*)
3) Generating a representative set of 30-60 statements drawing from the concourse (in Q studies this is called a *Q-set*)
4) Have a selection of participants rank the statements into a set grid indicating the level of agreement or disagreement (producing what in Q studies is called a *Q-sort*)
5) Conducting semi-structured interviews following the completion of the Q-sorts to elicit participants' thoughts and reasoning for their ranking
6) Analyzing the completed Q-sorts using specialized Q-methodology software to extract shared perspectives (in Q studies these are called *factors*), which combined with the post-sort interviews forms the foundation for analyzing the main perspectives on the topic among the participants
7) Showing the preliminary results to participants for additional iterative layers of interpretation, verification, and participation

My process through these seven steps is detailed in **Article 2** and briefly summarized under *Subsection 4.3: Research Process and Methods* below.

Despite having been around since the mid-20th Century, Q-methodology is still relatively new as a methodology in human geography. When used, it is often for the purpose of identifying differing opinions among stakeholders in research on environmental governance (Sneegas et al., 2021; Zabala et al., 2018). Through its mixed qualitative and quantitative aspects, it is found to offer "replicable, evidence-based results that may support decision-makers in management options assessment, critical reflection, policy appraisal and acceptability, and conflict resolution" (Sneegas et al., 2021, p. 1). Human geographers have also used Q-methodology to study environmental knowledges (Forrester et al., 2015), environmental management (Loring and Hinzman, 2018), environmental education (Guo et al., 2020) and consumer behavior (Revilla and Salet, 2018). More recently, some studies also focus on perceptions of change in social-ecological systems (Ungar et al., 2020), which is similar to my application of Q-methodology (**Article 2**).

Highlighting how the 'cultural turn' in human geography has generated an increasingly "anti-quantitative research climate", in which transdisciplinary and mixed methods research is not always easily accommodated, human geographer Sally Eden et al. (2005, p. 414) suggest that Q-methodology might be a "more acceptable face of quantification (…) because (ironically) of its qualitative and interpretative characteristics." Thus, in all applications of Q-methodology in human geography research, emphasis is on the qualitative aspects while the quantitative aspects are viewed to lend 'computing power' to the process of comparing several unique configurations of data. While having a following of devoted Q-researchers, the methodology has also received criticism from both qualitative and quantitative scholars. While the former group is concerned with the importance of honoring the highly interpretive nature of the Q-methodology process (Eden et al., 2005), the latter group fundamentally questions the ability of the methodology to study subjectivity 'scientifically' (Kampen and Tamás, 2014). Much of this latter critique, however, is at least in part caused by confusion about Q-methodology's ontological and epistemological grounding, which is explicitly non-positivist and understands subjectivity as something emergent (Brown et al., 2015; Ramlo, 2016).

I have been drawn to Q-methodology exactly because of its emphasis on subjectivity as relational and contextual. The 'inventor' of Q-methodology, psychologist and physicist William Stephenson (1953) developed the methodology as a way to account for the contextual nature of reality proposed by quantum physics. Viewing subjectivity as something that similarly gains meaning by its relation to and impact on the surrounding environment, Stephenson wanted to help 'bring quantum theory to bear' upon the discipline of psychology (Stephenson, 1983). Q-methodology was developed to account for

the emergence of subjectivity while also producing data that can be studied scientifically: when participants are ranking, they are engaged in a subjective activity, but once the Q-sorts are completed they present an 'objective piece of reality' that can be interpreted analytically (Watts and Stenner, 2005). Said differently, while a Q-sort done by an individual tells something about how that individual has *chosen to relate* to the ideas presented in the statements, the subsequent factor shows something more coherent, since it shows the choices that are similar between several people within a particular cultural context (Watts and Stenner, 2003). In this way, Q-methodology takes a both/and stance on subjectivity, which in human geography has been described as potentially bridging essentialist and anti-essentialist theories (Robbins and Krueger, 2000).

Being interested in the emergent nature of change and the becoming and intra-actions of individuals and collectives, I have found Q-methodology to be particularly helpful. The methodology acknowledges the active involvement of research participants in giving meaning to the statements and is sensitive to the construction of reality through meaning-making. While the statements are 'out there' (i.e., words written on sheets of paper), they do not have any inherent meaning until the research participants apply their logic and understanding (their subjectivity) to them, relate each individual statement to each other and 'project' their understanding of reality onto the statements as a whole. Doing the same Q-sort twice would give two different results, since a slight change in perception and state of mind is likely to alter how each statement is perceived as well as their relationship to one another. While this is a hard blow to the notions of 'representing reality' through research, it opens up possibilities for exploring the many expressions of 'reality'—or indeed the many 'realities'–found on a given topic.

4.3 Research Process and Methods

This research journey began well before I started as a doctoral student at the University of Oslo and my relationship with Igiugig community members spans more than a decade. During this time, I have engaged with the community continuously, with most direct engagement during the periods of 2011-2012, 2017, and 2020-2021. As **Article 1** draws on data generated during my master's studies (2010-2012), and the questions and approaches that frame my other articles similarly are informed by this work, I have included a brief description of how the data was generated. The main emphasis, however, is on the data generated during my doctoral studies (2016-2021), with data generation occurring in two main periods: 1) summer and fall 2017 and 2) spring 2021.

The main method used for generating data was semi-structured qualitative interviews. During the data generation process, a total of 72 interviews with a total of 45 different community members were conducted, of which 27 were women and 18 were men (see Table 4.3.1 below). Of the 33 individual

community members who participated in interviews during my doctoral studies, 28 also participated in the Q-methodology ranking process.

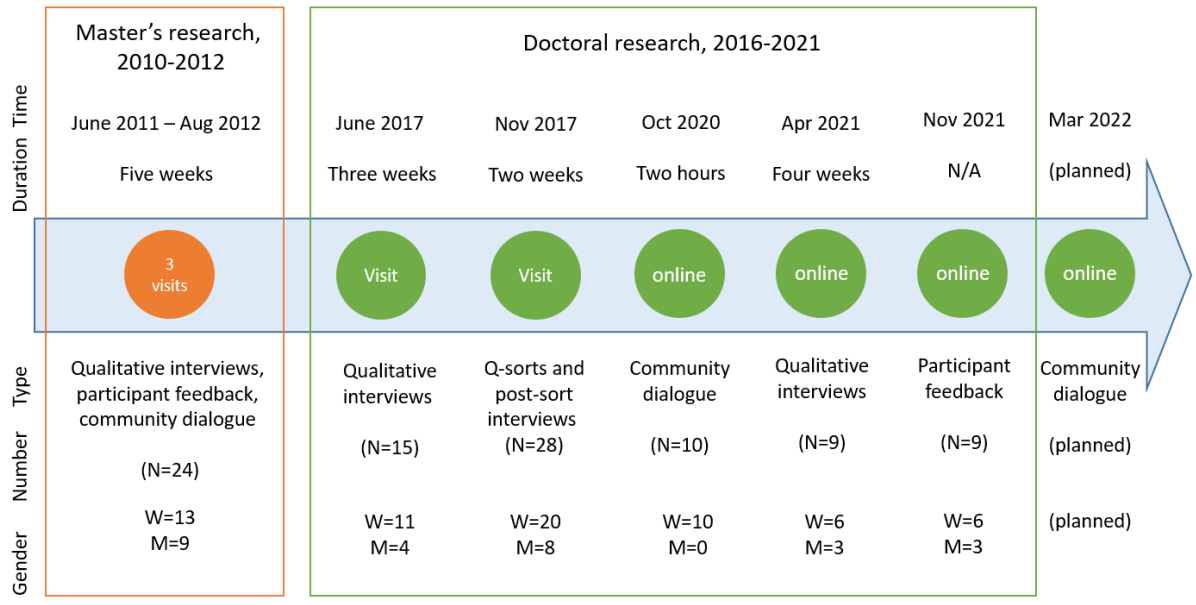
Table 4.3.1 Overview of Interviews and Interviewees			
	N of interviews	N of interviewees	Gender balance
Master's studies	21	23	W 12 M11
Doctoral studies	51	33	W 23 M 10
Total	72	56/45 *	W35/27 M21/18 *

* Discrepancies are due to overlap in who I interviewed during my master's and doctoral studies. The first number is the sum of the numbers from the rows above, while the second number reflects the total number of individuals involved in the study as a whole, with each individual only counted once.

The process of generating data is described in some detail in **Article 2**, pp. 12-13 as well as **Article 3**, pp. 7-11 for the first data generation period (summer and fall 2017) and **Article 4**, pp. 8-10 for the second data generation period (spring 2021). Rather than repeating it here, I will outline the key steps and otherwise use the space for reflections on the process and choice of methods as well as expanding on a few points that were only briefly covered in the articles. Since **Article 5** does not directly rely on empirical data but presents methodological reflections, it is not included in the research process presented here.

Some engagements during the past 11 years have been with the explicit aim to generate data, while others have been aimed at sharing findings and reiterating conclusions. Figure 4.3.1 below shows a timeline with the main points of engagement and the methods used for data generation.

Figure 4.3.1: Timeline for Collaboration. Collaboration during master's studies (orange) and doctoral studies (green), including information on methods and participants. The final engagement point is in the planning stage at the time of writing.



My first visit to the community was in 2011 as a master's student at the University of Alaska Fairbanks (UAF). I had learned about the community two years prior in a class on rural community development where the then newly appointed Village Administrator had spoken to the class about their sustainability efforts. Interested in the role of youth in rural community sustainability, I asked the Village for permission to do a study on their approach to community sustainability, including how to ensure the wellbeing of community youth. The community expressed interest in gaining an 'outside' perspective on their work and agreed to collaborate with me on this research. Based on semi-structured ***qualitative interviews*** done with 24 community members during two visits, I conducted a ***narrative analysis*** focused on the community's sustainability work as perceived by the community youth, linking sustainability efforts to sources of vulnerability and resilience (Gram-Hanssen, 2012) (see **Article 1** for some of the results of this study and more information on data generation). The process was finalized through a third visit where I presented the results at a ***community dialogue*** session.

After formally commencing on my doctoral studies in fall 2016 at the University of Oslo (UiO), I reached out to the Igiugig community leadership and inquired about their interest in picking up our collaboration from five years prior. We discussed the compatibility between community needs and the goals of the larger research project I was part of, AdaptationCONNECTS, which focused on the role of social transformation in 'successful' climate change adaptation. Climate change is a concern in Igiugig where riverbank erosion, increases in vegetation and reduction in river and lake ice are some of the climate change induced changes they are currently adapting to. Yet, the challenge of climate change and the relationship between adaptative change and transformative change did not necessarily map onto the 'bigger picture' concerns of the village leadership. Rather, of central concern was the challenges and opportunities for enhancing self-sufficiency, self-governance and community wellbeing. These first conversations made me reconsider my research questions and implored me to take a more open approach to the research. This was the first, but not the last time I felt a potential conflict of interest between the goal of supporting ongoing community work and the goal of contributing to particular theoretical conversations within academia. Throughout our collaboration, I have attempted to make room for both as well as reshape the latter to better fit the former.

My first visit back to Igiugig was in summer 2017 for a duration of three weeks. As I knew most community members from previous visits and had interviewed several individuals for my master's research, part of the aim for the visit was to reconnect with community members and get a sense of what changes had occurred since I was there last through informal conversations and qualitative interviews. During this visit I took part in community life, helping in the community greenhouse, splitting fish on the beach and cooking for community potlucks. Inspired by feminist and decolonizing methodologies, I devoted the first week to 'engaged acclimatization'; "a process of embodied and

reflexive knowledge production occurring through immersive encounters with the material, political, cultural, and perceptual ecologies of [particular] communities" (Grimwood et al., 2012, p. 214). This allowed me to relate socially and to be grounded in "the human-being-to-human-being meeting", which Smith (2014, p. 15) reminds us is not the interview or the observation, but "the beginning, in its ritual, spiritual, visceral, uncertain, sweaty first touch of skins, histories, genealogies, politics." This grounding gave me a sense of important themes and who to approach for interviews. At the end of the first week, I wrote a few paragraphs about myself and my project, which was published in the community's online newspaper (Igiugig Village Council, 2017), after which point I commenced the process of recruiting community members to participate in interviews.

During the visit, I conducted a total of 15 semi-structured ***qualitative interviews*** focusing on the perception among community members of the main drivers of positive community change (with the definition of 'positive' referring generally to the community goals of self-determination, self-sufficiency and wellbeing) (see *Appendix 1* for the interview guide, *Appendix 2* for demographic questionnaire and *Appendix 3* for the Informed Consent Form). The interviews were recorded and later transcribed. I chose semi-structured qualitative interviews as my main method for data generation to allow for and engage with individual and collective narratives in the community (DeVault and Gross, 2012). While I guided the interview process and was a co-creator of the narratives through my questions, reactions and positionality, the openness of the semi-structured qualitative interview allowed for a high degree of participant control in taking the conversation where they felt it should go (Kvale and Brinkmann, 2009). Through the interviews, I was mindful of listening deeply to what was shared, and while my mind was racing to understand and make connections, I made an effort to quiet my analytical mind and engage in a deeper sense of relating (Gram-Hanssen et al., 2021). After each interview, I wrote down my immediate impressions for reference in the later analysis process.

Participating in community life also provided valuable opportunities for deepening my understanding through ***participant observation***, where certain themes identified during the interviews were reflected upon further or exemplified through interactions among community members. Knowledge and insight does not only (or necessarily mainly) arise in formal interview settings (Watson and Till, 2010), and participant observation was an important grounding in the everyday life of community members. As has been described in ethnographic research, participant observation allows the researcher to examine "firsthand and up close how people grapple with uncertainty and ambiguity, how meanings emerge through talk and collective action, how understandings and interpretations change over time, and how these changes shape subsequent actions" (Emerson et al., 2011, p. 5). At the end of each day, I wrote in my fieldwork journal to make note of the impressions of the day and identify emerging analytical themes. During the first visit to Igiugig, I continuously reflected on how to frame the research

and how the narratives shared might link to the goal of the research project I was a part of. Early on during the first visit in 2017, I wrote: *"Decolonizing adaptation," is that what I am trying to get at? Both trying to decolonize what adaptation means but also letting the adaptation process be a decolonizing process?* While decolonization was not a theme in the AdptationCONNECTS project, the grounded and abductive form of data generation enabled this concept to become an important component of the research with enhanced centrality through the process of writing the five articles.

In line with the Q-methodology process, when I returned home, I created a *concourse* based on a ***narrative analysis*** of the interviews (Sneegas, 2019), focusing on the study question of the main drivers of positive community change. I identified specific statements that spoke to the study question and sorted them according to emerging themes. Next, I reviewed and sorted the statements in the concourse (N=228) to remove duplicates and ensure clarity and ended up with 38 statements equally distributed across the themes. I printed the 38 statements onto individual note cards, comprising the *Q-set*, and made a ranking grid (see Figure 4.3.2), both of which I brought with me for my second visit to Igiugig in the fall of 2017. During the visit, 28 community members participated in a ***ranking process***, comprised of ranking the 38 statements onto the grid in accordance with their agreement or disagreement with the individual statements (from -4 mostly disagree to +4 mostly agree). After each participant had finalized their ranking (producing a *Q-sort*), participants were asked to explain their ranking in a post-sort ***qualitative interview*** (see **Article 2** for the statements in the Q-set and *Appendix 4* for the Q-sorting instructions and the post-sort interview guide). The interviews were recorded and later transcribed.

Figure 4.3.2 Ranking Grid. The grid that participants used when ranking the 38 statements. The pictured ranking is done by an Igiugig community member in June 2017. (Photo by Author, 2017)

After the second visit, I analyzed the *Q-sorts* through an ***inverted factor analysis***[7], using the specialized software program PQMethod[8]. Since the analysis is only described in brief terms in **Article 2**, in Box 4.3.1 below I outline the steps and decisions made to ensure transparency of the process.

Box 4.3.1 Inverted Factor Analysis Explained (based on Watts and Stenner, 2012)

A factor analysis is a data reduction technique aimed at accounting for as much of the study variance as possible by identifying the shared meaning present in the data through calculating the correlation matrix. In Q studies, this is done by calculating the extent and nature of the relationship between one Q-sort with all the other Q-sorts in the study, based on the correlation between the ranking of all statements. The extracted factors will thereby ideally represent the key viewpoints held in common by the study participants (Watts and Stenner, 2012, pp. 97–98).

The first factor identified in the analysis will be the most significant one in terms of viewpoints held in common by the participants. Once this factor has been extracted (in essence removed from the data), the relationships between the Q-sorts change character and the second factor is identified based on these new relationships. This process continues until there is no more commonality between the Q-sorts (pp.100-101).

In order to extract factors for my analysis, I ran a centroid factor analysis, using the program PQMethod. While a centroid factor analysis identifies mathematically preferable solutions, it does not limit the analysis to these but remains open to a more interactive process between data and researcher. In this way, theoretically appropriate and meaningful solutions can be chosen, informed by the statistical analysis but not determined by it (p. 99).

I conducted an exploratory factor analysis, meaning that I proceeded with an inductive strategy for extracting and analyzing the factors. This implies largely letting the data indicate the number of factors to extract, rather than setting a goal of a certain number of factors beforehand (pp. 95-96).

I started by extracting five factors. Based on the correlation of each Q-sort with each factor (*loading*), I calculated the eigenvalues for each factor and reduced the number of factors to three based on the Kaiser-Guttman criterion, which requires an eigenvalue of 1.00 or more (pp. 105-106), and Humphrey's rule, which states that the cross-product of the two most significantly loaded Q-sorts (q-sort * q-sort) should exceed twice the standard error (0.32) (pp. 107-108). In addition, I also calculated how much of each Q-sort could be explained by the different factors (*variance*) and how much of the data as a whole could be explained by each factor (*total variance*) (p. 104). These calculations supported the choice of reducing the number of factors to three.

A three-factor solution accounts for 58% of the study variance and 65% of the Q-sorts, with a cut-off at 0.5 (increased from the actual level of significance of 0.42 due to too many confounding Q-sorts – Q-sorts that load significantly on two or more factors). According to Watts and Stenner, factor solutions that account for 40% or more of the study variance are considered as sound (p. 105).

Each of the three factors generated through the factor analysis represented an 'ideal Q-sort', which expressed a particular opinion drawing from a cluster of individual Q-sorts with similar rankings. Drawing on a ***narrative analysis*** of the post-sort interviews, where I identified and coded emerging themes, I wrote up three narratives that spoke to each of the factors in terms of their opinion on the drivers of positive social change in Igiugig. After the article write-up, I sent a draft to the Village Council

[7] As described in the section on Q-methodology, 'inverted' refers to having a number of variables (statements) be evaluated by a number of individuals, as opposed to the classical factor analysis where a number of variables are used to evaluate a number of individuals. See geographers Paul Robbins and Rob Krueger (2000, p. 640) for a helpful overview table of some of the differences between these approaches.

[8] Available here: http://schmolck.userweb.mwn.de/qmethod/

President to review for comments or suggested changes. Since no individual quotes were used in the article, I decided to wait to engage the rest of the community until I had the chance to do a third visit. However, due to becoming a mother, the third visit was postponed, and as it turned out, due to the COVID-19 pandemic, the visit has yet to happen.

Instead of a third visit, in the fall of 2020, the Igiugig school library hosted a ***community dialogue*** event where I joined via Zoom and presented on the results from the Q-methodology study (**Article 2**), as well as initial reflections from a draft of a follow-up article on leadership in Igiugig (**Article 3**), which I had started working on after my maternity leave (July 2018-March 2019). The empirical data for this article was derived from the qualitative interviews from 2017, and the analysis was inspired by the results of the Q study. Based on the three factors and themes from a literature review on Indigenous leadership, I did a ***narrative analysis*** of the interviews focusing on how these three perspectives viewed the nature and role of leadership in the community's sustainability work, aided by NVivo12 software. The ten community members present at the community dialogue event had all been involved in the Q study and after my initial presentation they took turns providing feedback, supporting the interpretations and reiterating some points. When asked if they wanted to review quotes to be used in the leadership article, they all declined arguing that this was not necessary as the quotes would be anonymized. At the end of the event, I inquired into community members' interest in participating in another round of interviewing, via Zoom due to continuous travel restrictions, focusing on the wider impact of Igiugig's work (**Article 4**). All community members present expressed interest in participating and the Village Council President suggested that I contact community members individually via email. After the community dialogue event, I wrote a summary of the Q study and the main points of the article on leadership, which was published in the community's online newsletter (Igiugig Village Council, 2021).

After revising and submitting **Article 3** to a journal, in early spring 2021 I began planning for **Article 4**, focusing on the 'scalability' of the transformations happening in Igiugig. Having interviewed most community members at this point, I had a good idea of whom to interview for this last round of data generation. Rather than aiming for a wide range of perspectives as during the first period of data generation, I instead aimed to interview a handful of community members that had knowledge about the wider impacts of the community's work. Still, I also wished to have diversity in perspectives in order to identify the multiple relations involved in these processes. During a four-week period, I did semi-structured ***qualitative interviews*** with nine community members, eight via Zoom and one over the phone. The interview guide centered on what enables and disables Igiugig to have impact 'at scale', with a special emphasis on community member's perception of their ability to make a difference beyond the borders of their own community (see *Appendix 5* for the interview guide). The interviews

were recorded and later transcribed. I did a ***narrative analysis*** of the interviews, where I coded for perspectives on the main relations of importance for generating impact 'at scale'. After writeup of **Article 4**, during November 2021, I requested that those who had participated review the manuscript and voice any concerns or provide any additional input to the analysis and the use of their words. I received comments from around half the participants.

This is the current endpoint of our collaboration. However, we are planning a final (for now) event where the insights from **Article 4**, as well as the dissertation as a whole can be presented and discussed through an online ***community dialogue*** session. When time and global health concerns allow, I will make my way to Igiugig once more, to honor my commitment to my relationships and to give *Quyana* to the people of Igiugig.

4.4 Subjectivity and Ethics

The final part of this section takes on a more personal and grounded nature, explaining who I am in the context of doing this research as well as my reflections on the research process itself and the challenges I encountered along the way.

4.4.1 Positionality and Reflexivity

This research has been performed by me as I have become entangled with people, places and ideas. My personality, subjectivity, qualifications, interests, reflections and blind spots have informed all choices along the way. While I have worked to disclose and consider my positionality in each of the articles included in this dissertation, I wish here to reiterate a few points. The first part pertains to my positionality in context of my research topic, while the latter half focuses on my positionality within the community of Igiugig.

I am keenly aware that I am a non-Indigenous scholar of northern European descent, writing about realities, ontologies and struggles of Indigenous peoples of Turtle Island, and that this comes with certain challenges and responsibilities. Cultural theorist Astrida Neimanis (2015, p. 2) writes that as feminist and anticolonial researchers "we are caught between a representationalist rock and a hard place of complicit silence." This position requires that I engage carefully and deliberately, recognizing the privilege I hold and attempting to uncover and challenge the many traces of institutionalized oppression embedded within the European research tradition, where research *on* Indigenous peoples has so long been the norm (Leeuw and Hunt, 2018; Radcliffe and Radhuber, 2020; Smith, 1999). I recognize that, despite the growing popularity of decolonizing methodologies and my own growing awareness and sensitivity, "academic privilege reinvents the authority of privilege in myriad ways," making it crucial that I as a non-Indigenous researcher continuously work to "listen, think and act differently" (Howitt, 2021, p. 2). Rather than simply 'confessing my privilege' (Smith, 2013), my aim

has been, and continues to be, to use my privilege to help dismantle oppressive ideas and practices and simultaneously help support equitable and sustainable change within the various spheres of my influence. One lesson from this work is that these spheres are often larger than we think. Aligning myself with my theoretical anchor points of 'deep' relationality, I realize the potential and the responsibility I have for making these pages count.

Realizing the problems with both representation and silence (both of which are colonial positions), I find inspiration and cautionary encouragement through the teachings of Indigenous and critical non-Indigenous scholars writing about decolonizing methodologies that center the research process in relational responsibilities (Smith, 1999; Southam, 2021; Wilson, 2001). TallBear (2014) emphasizes the importance of relationship-building in research. While recognizing the genuine intensions behind the notion of 'giving back', she shows how this maintains the binary between researcher and researched. Instead, she argues for the importance of continuous engagement and offers the notion of 'standing with'. As a research methodology, 'standing with' emphasizes speaking 'in concert with' rather than speaking for others. It recognizes difference as well as the co-constitution of knowledge and meaning. She suggests that "a researcher who is willing to learn how to 'stand with' a community of subjects is willing to be altered, to revise her stakes in the knowledge to be produced" (TallBear, 2014, p. 2).

According to Cree and Métis Elder Donna Wright (cited in Southam, 2021, p. 151), for non-Indigenous researchers to conduct decolonizing research with Indigenous communities, "dialogue must continue and relationships must be maintained." While this can be challenging if perceived as limited to the time spent doing fieldwork, I find guidance in Kanngieser's (2020, p. 392) notion of being "good kin over distance." Reflecting on how non-Indigenous researchers can respect Indigenous 'Land-centered literacies' to ensure responsible and caring action, Kanngieser (ibid.) shares that, "although as non-Indigenous people these are not our literacies, we can work in conjunction with them by starting with what we don't know." To me, this invites a humility and an insistence on being human first and researcher second. These notions have also helped me reflect on how to continuously engage with the insights shared with me by community members, long after I have left the community. Throughout the years of our collaboration, I have worked to better learn how to 'stand with' and 'speak in concert with' the people of Igiugig, predominantly through building increasingly stronger and more meaningful relationships. While this helps me in dealing with some of the ethical issues that have emerged, it has also, I believe, helped me create more impactful research.

My own ancestry is northern European as long back as I can trace. I have received my academic training in various Western academic institutions in Denmark, Norway and the United States, and have mostly lived in places where the First Peoples of those places were not 'granted' the right to steward those

lands. Learning about colonization and recognizing my own embeddedness within colonial systems and practice is an ongoing process. I recognize that when we speak of colonial violence, we speak predominantly of the violence inflicted by people of my cultural lineage upon Indigenous people throughout the world. I hold this knowledge and the differentiated responsibilities it entails while also holding the notion of one humanity. This stance is partly based on an inherent sensitivity and partly derived from a growing number of both Indigenous and non-Indigenous scholars who work to uncover the ways in which we Europeans have ourselves been colonized, our cosmologies and knowledges degraded, predominantly through the process of Christianization (Marsden, 2017; Trudell, 2001; Woman Stands Shining, n.d.). I am inspired and encouraged by Indigenous scholars and activists who suggest that there is a way to balance the need for Indigenous specific knowledge and practices on the one hand while tending to the whole of humanity on the other, and for those no longer Indigenous to place to potentially become so again (Kimmerer, 2013; Marsden, 2020).

Along with my co-authors, in **Article 5** I reflect more deeply about positionality in research with Indigenous communities as a non-Indigenous researcher. Based on our experiences working alongside Indigenous individuals and communities, we draw on Indigenous formulations of relationality to inquire into how transformations research might be decolonized. We engage with the notion of 'right relations' and offer four practices that may enable us to embody this stance: deep listening, self-reflexivity, creating space and being in action (Gram-Hanssen et al., 2021). While these articulations have come at the tail-end of my doctoral studies, various expressions of these practices have been central to my research endeavor from the onset. For instance, an abductive and narrative approach has helped me turn and 're-turn', "as in turning it over and over again", (Barad, 2014, p. 168) to listening and experiencing alongside Igiugig community members in order to deepen my understanding (Smith, 1999). Practices such as keeping a research diary (Emerson et al., 2011) and keeping close dialogue with community members throughout fieldwork and data analysis (Markey et al., 2010) has helped uncover blind spots and enhanced my self-reflexivity. Drawing extensively on Indigenous scholarship has helped me front Indigenous perspectives and ways of knowing (Todd, 2016). And taking part in community life and aiding in community-specific work both in person and remotely has helped me be in action. While these are minimal steps, I consider this work to be an ongoing commitment of relationship building (TallBear, 2014).

Another important part of my positionality is how I stand in relation to the community in which I work, including my personal relationships to individual community members. It is in the context of collaborating with actual people and communities that issues of power and privilege truly come to the fore. During the early stages of forming my relationship with the community in 2010, I held the role of

a respectful 'outsider'[9]. While still respectful and still an 'outsider', I have also gradually become a friend to several members of the community, not least to the Village Council President who due to her leadership position and keen awareness of community change and wellbeing has been an important and inspiring person to work with. While also forming close bonds with several other community members, it is the Village Council President that I continuously turn to for updates on community life, practicalities surrounding visits and engagements, and questions of research ethics. To a large extent, then, she facilitates my access to the community. While we have reflected on how to ensure that she does not become an unnecessarily restrictive gatekeeper for my experience and the insights I am able to gain, it is possible that certain other community members have refrained from engaging with me openly due to a perceived 'alliance' between me and the Village Council President. It is not my sense that this has been the case, however, as some community members have spoken openly to me about their frustration with community leadership or certain leadership decisions. This indicates that I have been perceived of as a neutral person or potentially a person who could help bring attention to their identified frustrations through my role as a researcher.

Throughout our engagement, my relationship with the community has been characterized by various expressions and degrees of reciprocity. Despite being there to learn and receive, I have also been there to give. Returning home with the stories, insights and reflections generously shared with me, I have carefully considered how I might convey these in ways that ensure respect, relevance and rigor. Specifically, I have been preoccupied with ensuring that I show respect to the people who shared their knowledge and to the place and context in which it was shared, that my writings are understandable and relatable to a wide range of audiences, including in academia, that I honor the specificity while also making visible the universally applicability of this knowledge, and that my work is seen as legitimate in the context of academia and supports me in my pursue of a doctorate degree. While all important, at various points during the process some considerations have come before others. Overall, however, honoring my relations to the people of Igiugig has been my first priority.

4.4.2 Specific Ethical Considerations: Academic Standards, Decolonizing Practice and Researcher Pragmatism

As is made clear throughout these past pages, I see ethics as always already being present in any activity or inactivity, not least in the context of research. As such, it makes little sense to have a separate section dealing with the issue of ethics. Yet here I want to speak to a particularly salient issue of ethical consideration that has had several expressions during these past years of collaborating with

[9] Although, see Torjer Olsen (2018) for a critical reflection on the notion of an 'insider/outsider' binary.

Igiugig. Namely the tension between academic standards, decolonizing practice and a certain researcher pragmatism that arises from doing empirical research.

One central issue in this regard is the emphasis within the decolonization literature on a research practice that is community-based, -driven and -owned. This includes following community guidelines for research ethics, having community members be co-creators of research questions and take part in both data generation, analysis and write-up, and enable community ownership over research results (Koster et al., 2012). I have been drawn to community-based participatory research and action research partly because of these explicit commitments to turn the research process into a process that furthers the needs of the community and works to break down the barrier between researcher and researched (Stanton, 2014). Despite this recognition, my own work has not followed these guidelines. While the inquiry is centered on the community and community member's perceptions and narratives, I have articulated the research questions, selected the methods, performed the analyses and written the articles. While I have asked for input and worked to ensure that the research is relevant and beneficial for the community, the project has been largely shaped and driven by me.

Part of the reason for my research taking on a more conventional academic form is that the past five years have been a maturation process. During the past years, I have become increasingly aware of the many ways in which critical and anti-oppressive researchers make room for care and power-sharing in the research process. As a doctoral student, I have felt a general concern as to the dos and don'ts within my discipline and uncertainties about how to show academic rigor and disciplinary belonging while skillfully pushing the boundaries toward a more emancipatory research practice (Kilian et al., 2019; Sellberg et al., 2021). Being an early career researcher in an academic environment where decolonizing methodologies are still more on the fringes makes this line harder to walk (Mitchell, 2018; Nakamura, 2010). This is not only about 'institutionalized barriers', however, but also how as a non-Indigenous scholar I can afford not to walk the line, to instead by satisfied within the confines of my discipline. Part of the challenge, then, is to be willing to have something at stake.

Additionally, the challenge of doing more participatory research is also found in the community itself. Firstly, while a growing number of Indigenous communities, especially across Turtle Island, have developed community-specific research ethics guideline with clear requirements for outside researchers to follow in order to ensure that both the research process and results benefit the community (Hayward et al., 2021), Igiugig does not have such explicit guidelines. This does not mean that the community does not engage in research. Indeed, at any given time, the community is involved in several research projects with both university and private sector partners with the purpose of advancing community goals. Neither does it mean that the community does not have requirements

for their research partners, but rather that these are somewhat contingent on the particular project and partner. While I asked for permission to commence this research and was prepared to adhere to cultural standards or shape the project in accordance with community goals, the response from the village leadership was marked by openness, curiosity – and lack of time. After several lengthy emails to the Village Council President in early 2017, I sent a message on social media to make sure that she had received my proposal for a collaboration. She promptly replied: *"I've been slammed busy (…) But my short answer is yes, we would love to have you do more research here!"* It cannot be emphasized enough how much Igiugig community members, and the leadership in particular, work to enhance the wellbeing and self-determination of their community. It is an ongoing effort that knows no limits, sometimes threatening to overwhelm those at the forefront of this work.

This context matters because community-based participatory research requires a lot from all parties involved in the research process, including time. In approaching Igiugig with another request for collaboration, I was mindful of how busy they are and of the countless real-life issues they deal with every day. Since it is never guaranteed that research – even co-created research – results in tangible benefits for those involved, taking time to do a collaborative research process felt like asking them to spend some of their valuable time so that I could better live up to my methodological commitments. I was concerned that it would end up being more for me than for them. While I did initially propose to include some participatory methods that could ensure a higher degree of co-creation and community grounding, the community leadership expressed concern that it might be challenging to gather community members for yet another activity, taking time away from their already busy schedules. Ultimately, based on the community context I chose to pursue less time intensive methods, primarily qualitative interviews. Among other things, this decision has meant that I have remained more on the 'outside', acting more as a partner for reflection, a sounding board, a place to vent, and a friend, than as a critical co-creator of community-based research. In my fieldwork diary from the first visit in 2017, I write: *It is challenging to find the balance between being too invisible and taking up too much space. I know that everyone is busy.* This is not only about me as a researcher. I know that taking up space, requesting something substantial and staying accountable to the work being done and the potential conflicts that arise is challenging for me on a personal level. One way that I added a more community-based and participatory element was through the community dialogue events and the ongoing dialogue with the Village Council President.

To some extent it feels like a disappointment to not have conducted research that is more in line with the goals and ethical commitments of community-based participatory research or action research; like only going halfway and shying away from a full engagement with this messy, difficult and rewarding work. Yet it is also a result of the community being powerful and purposeful in their work. My intent

was never to help 'solve a problem' or 'build community resilience', but rather to help articulate *how* they do their work and what this means for the theory and practice of transformation. Finally, I also remind myself that this is only the beginning. The lessons learned here will help me and the community articulate better the next steps we take, individually and together.

Below, I provide two concrete examples of how the tension between academic standards, decolonizing practice and researcher pragmatism came up in the research process and how I dealt with it.

4.4.2.1 Choosing Methodologies and Methods

Q-methodology was suggested as a methodology in the posting of the PhD position within the AdaptationCONNECTS project. Thus, while writing my proposal, I researched the methodology and, finding it inspiring and innovative, incorporated it into my research design. After being hired onto the project and approaching Igiugig for a collaboration, Q-methodology stayed as a central methodology for my data generation. I was excited about using a mixed method, as I had only ever worked qualitatively. Also, I was intrigued by the strong linkages to quantum physics and non-deterministic understandings of causality, as I had recently encountered feminist and physicist Karen Barad's (2007) work on agential realism. As I was interested in both individual and collective narratives and the relational and flexible nature of opinions, Q-methodology seemed potentially helpful. Yet, as human geographer Gretchen Sneegas (2019, p. 7) has observed, while Q-methodology can be used to 'give voice' to marginalized knowledges and thereby seen as supportive of a feminist or participatory research agenda, "Q is not inherently participatory or decolonizing—like any methodology it can be, and has been, employed in top-down and oppressive ways." Especially the quantitative aspect of the methodology, where the rich qualitative data material is quantified through the inverted factor analysis, can be seen as less aligned with a feminist and decolonial emphasis on creating space for other voices to be heard (DeVault and Gross, 2012). However, in many regards, a factor analysis is nothing more than a tool to identify patterns. Something most social scientists do, albeit using different tools and approaches. Furthermore, the active choice of how to proceed with generating the factors "brings the researcher's subjectivity into the heart of the seemingly quantitative stage of Q" (Eden et al., 2005, p. 418). Rather, whether Q-methodology is experienced as empowering or not for those involved is more likely dependent on how the researcher engages with those collaborating in the research.

As I engaged with the Q-methodology process, I aimed to have it be informed by community members' perspectives (the concourse was derived from qualitative interviews) and have the generation of factors be highly informed by community member's own meaning-making about their ranking (through the post-sort interviews). The ranking took place in people's homes where they felt

comfortable, and the conversation around the ranking was open to whatever perspective they would like to share. Community members were interested in the ranking process and found it equally fun and challenging; one community member who had heard from others about their experience, approached me asking, *"when can we find time to do 'your game'?"* After completing the ranking, she reflected, *"It's not as easy as it looks!"* All participants expressed interest in what factors would emerge, saying things like *"I wonder how everyone else ranks these statements."* During the ranking and post-sort interviews, I found Q-methodology to be an excellent elicitation tool, where a space was created for participants to reflect on the interrelated nature of community change and provide meta-perspectives on the themes that had been identified during the initial interviews. This process was not only helpful in terms of deepening my understanding of how change was perceived and enacted, but also prompted further reflection for the participants, beyond the scope of the exercise, exemplified by one community member, saying: *"A lot of the stuff I don't think about on a regular basis."* The ability to initiate a process of reflexivity is mentioned by several human geographers as part of the power of Q-methodology (Forrester et al., 2015). I thus attempted to make use of Q-methodology reflexively, including being open to community members' perspectives and preferences and emphasizing the aspects that supported a deepened engagement with the topics we discussed.

4.4.2.2 Anonymity and Representation

Informed by the research ethics protocol in Norway (www.nsd.no), in my Statement of Informed Consent Form I informed community members that the insights they provided through the research process would be anonymized. The purpose of this was to secure community members' safety and wellbeing and enhance the likelihood of them feeling comfortable sharing perspectives that may be less positive or well-perceived by others (Walford, 2005). I later encountered feminist and decolonial scholars who were critical of the assumption that anonymity is necessarily the most ethical and respectful choice. For instance, feminist scholar Rebecca Gordon (2019, p. 541) finds that insisting on anonymity can "deny research respondents the right to be heard and operate as a form of silencing." In this way, the question of anonymity ultimately relates to questions of representation. Anonymizing data can be seen as akin to removing the context in which insights are shared or erasing the influence of place for the creation of thought. Watts (2013) eloquently explains the problem with de-contextualized representation. Drawing on the Anishinaabe Creation History of Sky Woman falling to Earth, she explains how such historical Indigenous events are increasingly used "as a gateway for non-Indigenous thinkers to re-imagine their world. In this, our stories are often distilled to simply that – words, principles, morals to imagine the world and imagine ourselves in the world. In reading stories this way, non-Indigenous peoples also keep control over what agency is and how it is dispersed in the hands of humans." (Watts, 2013, p. 26)

In my own experience, the offer of anonymity was met by equal amounts of appreciation, indifference and confusion by community members, with some finding it comforting while others found it unnecessary. The question of anonymity came up for me when I in several of my articles felt compelled to name people in order to fully acknowledge their deep insights or to highlight particularly important personal relations. This relates to my growing awareness of the entangled nature of thought and place and the importance of contextuality for retaining the meaning and wisdom offered through a narrative or story (Watts, 2013). I ultimately refrained from naming individuals because of the initial promise of anonymity as well as the potential risk that named persons in one article could be connected to anonymous persons in earlier articles.

4.5 Assumptions and Limitations

The last point I want to discuss before turning to the results of the research, is the issue of assumptions and possible limitations to this work.

A central assumption of this research is that transformations are necessary to enable futures in which people and the planet may thrive. At no point in my writing do I question this assumption, which turns it into a potential blind spot. I recognize the risk of research that calls for 'radical transformations' to contribute toward a hegemonic grand narrative of transformation (Blythe et al., 2018). As Woroniecki et al. (2022, p. 7) rightly point out, "no single transformation is objectively desirable or undesirable in its entirety, no matter the aggregate or utilitarian effect. Nor can any transformations be seen as uniformly intended or unintended." I am aware that transformative change can be both undesired and unintended. Despite this awareness, I join others in arguing that deeply transformative change is necessary in order to meet the social-ecological challenges of our time (IPBES, 2019; O'Brien, 2021a). In order to care for differential positionalities and realities and to work to reduce the undue harm caused by transformative change, it therefore feels important and worthwhile to enhance our understanding of the drivers and processes involved in *deliberately* transforming society toward sustainability.

Another assumption of my research is that the changes happening in Igiugig are indeed deliberately transformational. While I have not made an assessment of whether or not the work in Igiugig is 'truly' transformational, my research supports this claim in at least three ways, some of which are engaged with explicitly in the articles. Firstly, it is broadly recognized that the troubling statistics of physical and mental health in rural Alaskan communities – and the bodies and stories in which they manifest – to a large part are caused by the ongoing process of colonization (Sequist, 2021). Colonization and decolonization are both equally transformational processes (Parsons and Nalau, 2016). Many of Igiugig's community efforts can be seen through a decolonial lens in that it is about enhancing self-

determination and self-reliance and enhancing or 're-turning' to knowledge and practices that the process of colonization aimed to destroy. Igiugig's active engagement with decolonizing their community and their people is a testimony to the transformational nature of their work.

Secondly, the work is driven by a different vision than the visions and ambitions that brought society at large to this present moment of unsustainability. Thus, it is not just that practices and outcomes are different, but that the very values and worldviews that drive this work are fundamentally different from modernist or even postmodernist ones, for instance through an explicitly non-dualistic understanding of phenomena such as individual/collective and human/nonhuman. Thirdly, the work happening in Igiugig is transformational by integrating multiple 'spheres' of change at once. Recalling the Three Spheres of Transformations framework by O'Brien and Sygna (2013), this holistic approach means that community work includes changes to infrastructures and day-to-day activities of community members, the development of different political processes that enhance the autonomy of the community, as well as challenging deep-seated beliefs embedded in popular and political discourse about rural community sustainability. While I have not engaged explicitly with the Three Spheres framework to help assess the transformative nature of the work being done in Igiugig, this could be an interesting next step to help further substantiate the framework through an empirical case.

Throughout my engagement with Igiugig, I have been somewhat biased toward that which supports this deliberate engagement with transformations toward sustainability. My framing of Igiugig as an example of 'successful' transformative change means that I have largely focused on 'positive' aspects that support this work. This does not mean that all change in Igiugig is transformative or positive, neither does it mean that all inter-personal relations are necessarily healthy and supporting the goals of the community. Through my many encounters with Igiugig community members, I have observed and sometimes been told about challenging and problematic relations and seemingly inappropriate use of position and power. These 'shadow sides' are not simply a footnote but are hugely important for understanding the 'whole picture' of transformative change in Igiugig. In **Article 4** I address this somewhat through an investigation into how inter-personal conflict is linked to ongoing processes of colonization. Yet my focus has laid elsewhere and these 'shadow sides' do not take up much space in the dissertation as a whole.

This bias is partly driven by my enthusiasm for Igiugig and my wish to help nuance or build a counter-narrative to the common discourse surrounding the 'no-future' of rural Alaska Native communities (Gram-Hanssen, 2018; Wexler, 2009). In my work, I have tried to account for the immense challenges that communities like Igiugig are up against (e.g., through an explicit consideration of how extractive industries embedded within the 'colonialism-capitalism-nexus' undermine community resilience, see **Articles 2** and **4** in particular), while showing the resurgence and resistance that helps build alternatives

to this moment. Thus, the focus has been on the 'cracks' and spaces of possibility for "enacting alternatives in the here and now" (El Khoury, 2015, p. 13), supported through a 'deep' relationality.

Lastly, I want to speak to the possible limitations of basing my entire dissertation on one case study. On the one hand, drawing on my feminist and decolonial methodological foundation and leaning on the many social scientists asserting that it is fully possible to start building theory from a single case (Donmoyer, 2000; Flyvbjerg, 2006), I do not see it as inherently problematic for the theoretical importance of my study that I had but one case. On the other hand, however, having more than one case could have potentially strengthened and nuanced my theoretical insights. When I wrote the proposal for this research, I had suggested doing comparative work with three different communities situated in different cultural and national contexts (a Yup'ik community in Alaska, a Sami community in Norway and an Inuit community in Greenland). However, after commencing on the doctoral work, and especially after becoming a mother, I realized that three case studies would spread me too thin, and I scaled it down to two (Alaska and Norway). My plan was to ground my work in Igiugig, where I already had relations, and nuance and contrast the insights from this work with a secondary Norwegian case. As the Corona pandemic took hold and it became clear that we would have to live with the virus for a while, I ultimately let go of the idea of a second case and focused instead on doing a third round of interviews in Igiugig (online), which formed the basis for **Article 4**. While I could have attempted to establish contacts in a Norwegian Sami community, the inability to go to the community and build relations made the choice relatively easy for me. Comparing, contrasting and nuancing the insights from Igiugig with insights from other community contexts could be an exciting next step to expand and deepen this research.

5. SUMMARY OF ARTICLES

5.1 Article 1: Leaving, Staying or Belonging: Exploring the Relationship Between Formal Education, Youth Mobility and Community Resilience in Rural Alaska

The first article included in this dissertation is in many ways a contextualizing piece, meant to give a sense of the community work being done in Igiugig and the challenging context of rural Alaska. It also works to center the dissertation in a relational frame, highlighting the importance of relationships to people and place for sustainable community work. The fieldwork for this article was done during my master's studies, and the article was written before I had fully articulated my research questions for my doctoral studies. My master's studies focused on the role of youth in rural community sustainability and the article focuses in on one piece of this question, namely the issue of youth mobility and why youth in Igiugig are choosing to stay or return to their community, in contrast to high number of rural youth outmigration across the state. The article specifically asks ***What is the relationship between relation to place, youth mobility and community resilience in Igiugig?***

Through qualitative interviews with community youth and other community members, the article paints a picture of a community that is focused on accommodating its youth and involving them in all community processes, giving them a sense that their perspectives and efforts are appreciated and able to shape the community's further development. Rather than staying or leaving, what becomes important is maintaining a sense of belonging. This in turn depends on particular relations to place and to people, as well as a decolonial reworking of community institutions to be able to harbor the wishes and visions of community members, including the youth. I end by arguing that sense of belonging to place is important for rural community resilience through how it renders other processes and conditions (such as education, jobs and housing) meaningful for community members. Relatedly, belonging to place also acts as a mediator between individual ambition and community wellbeing, aligning one with the other.

Besides its function as an 'introduction' to the community, I have included the article in the dissertation because it highlights some of the themes explored in my doctoral studies: the importance of a certain quality of relations between people and between people and place as well as challenging dichotomous thinking, such as leaving/staying, Native/Western, traditional/modern and individual/collective through a largely Indigenous relational ontology.

5.2 Article 2: The Role of Flexibility in Enabling Transformational Social Change: Perspectives from an Indigenous Community using Q-Methodology

The second article included in the dissertation is the first article that draws on empirical work conducted during my doctoral studies. In many ways, the findings from this article lays the groundwork for the subsequent articles. In it, I inquire into the main drivers of change in Igiugig, aiming to identify particular perceptions of change and their implications for deliberate transformation. Drawing on the literature on community resilience and sustainability narratives, the article specifically asks ***What are the main narratives of change in Igiugig and how are they accounted for in the community's sustainability work?***

As a way to 'map' different narratives in a systematic way, I employed Q-methodology, a method new to me at the time. Through the Q study process, explained in *Section 4: Methodology and Research Design*, I identified three central community narratives that each provided a unique angle on the most important drivers of change: passionate individuals, cultural knowledge and practice, and collective visioning and decision-making. Rather than being three distinct and mutually exclusive perspectives, however, the correlation between the three narratives was high and they are therefore better understood as three 'centerings' within a larger community narrative of change. Informed by the literature on the subjective qualities important for deliberately engaging with change, I was interested in the notion of flexibility. Based on my previous engagement with Igiugig, my sense was that flexibility might also speak to how community members approach their work. In the analysis, I therefore explicitly sought to unearth signs of flexibility in the narratives. In the article, I discuss how a high degree of flexibility in how different perspectives are navigated and accounted for is part of what enables the community at large to move towards enhanced sustainability, despite the very contested and political processes that characterize the context. I highlight the importance of community cohesion coupled with an appreciation for diversity and an ability among certain community members to view issues of community development from different perspectives, yet always grounded in Yup'ik values of care and respect.

The article also offers critical reflections on the concept of community resilience. Despite the high resilience of the community of Igiugig, I question the assumption that local resilience is the solution to societal challenges such as climate change, suggesting instead that local transformations are inherently related to what happens outside the community and that the possibilities and limitations for transformative community efforts need to be better understood. Flexibility, understood as being centered in a shared vision but being flexible in terms of how that vision might be expressed, becomes

a relevant quality not only for rural community leadership but for practitioners and researchers working with sustainability transformations.

Theoretically, the article suggests that individuals and collectives be understood as entangled, and as both/and, and highlights the potential of holding a processual and relational perspective on community change. This in turn invites a critical assessment of contemporary theoretical claims regarding how transformative change can be initiated and governed. These reflections mark the starting point for the third article.

5.3 Article 3: Individual and Collective Leadership for Deliberate Transformations: Insights from Indigenous Leadership

The third article builds directly on the second article by taking a deeper look into the three narratives from the Q study and how the perspectives in Igiugig can shed light on the relationship between individuals and collectives in change processes. Despite the interviews not having focused on leadership, it had emerged as a theme given that the Q study had asked about drivers of change. As a consequence, it felt like a natural next step to dive deeper into the notions of individuals and collectives through a leadership lens. As I began to read up on the conventional leadership literature, I noticed a tension between approaches to leadership that focus on the qualities and characteristics of the individual leaders, and approaches that view leadership as a collective and emergent property. This, I thought, is something an Indigenous relational perspective might be able to address! The third article therefore asks ***What characterizes the relationship between individuals and the community as a whole in processes of leading change?***

The article looks through the lens of Indigenous leadership theorization to provide a four-part analytical framework – individual, culture, process and integration. Where the first three analytical lenses align with the three narratives of the Q study presented in the second article, the fourth lens integrates them all into a larger whole – a meta-narrative, which takes account of the convergence and difference between the individual perspectives. Community narratives are storied through four community scenes where leadership is perceived through each of the four analytical lenses. I chose this unconventional and highly narrative-driven form to give a better sense of the contextual and entangled nature of the perspectives.

Drawing on the analytical lenses and community member narratives, I conceptualize leadership for transformative change as something that is inherently collective and emergent *as well as* being dependent on individuals 'showing up' in everyday situations. In this understanding, leadership, and by extension agency, is best understood as something hinging on the co-emergence of individuals and collectives - what I refer to as an 'individual-collective simultaneity.' The article highlights the points of

convergence between this perspective and certain process-oriented approaches to leadership, arguing for the possibility for and importance of bridging perspectives and paradigms to deepening our understanding of what it means to lead change. With this article, I thus make an attempt at theorizing what the insights from Igiugig might mean for a particular field (leadership) in the context of a particular issue (sustainability transformations).

5.4 Article 4: From Scaling to Relating: Quality of Relations Matter for Generating Transformative Systems Change

In the fourth article, I address the question of 'so what' by taking the insights from the previous articles and bringing them into dialogue with human geography scholarship on relational scale. I wanted to take a wider perspective on what happens in Igiugig and engage with theoretical debates within my discipline, while also turning attention to some of the barriers to change that I had picked up during the research process but never fully engaged with in the previous articles. With this in mind, the article asks ***What role do relations play in enabling and disabling local community change to contribute to global systems change?***

I start with the assumption that sustainability transformations require a reworking of relationships and that these are necessarily context specific. I problematize the tendency to focus on scaling sustainability innovations as a way to generate transformative systems change, arguing that simply reaching more people will not ensure that innovations will result in equitable and just transformations. I draw on literature from human geography on scale as relational as well as literature from Indigenous scholars on Indigenous relationality, in order to conceptualize cross-scalar relations as non-hierarchical as well as inherently political and ethical.

Based on this relational lens and qualitative interviews with Igiugig community members on how they perceive their work as having impact 'at scale', I develop a relational approach to understanding how transformative change can happen. I argue that a particular quality of relations and awareness of the inherent relationality of the local/global and self/world is of central importance for enabling community work to have impact 'at scale'. Drawing on both relation to place, people and process, I show how the process of colonization and colonial relations are an important limiting factor for the ability of Igiugig's work to contribute to systems change. This emphasizes the need for dismantling fracturing relations that hamper sustainability transformations in place. The insights from this article call for a shift in the narrative from being about scaling transformations to instead being about the transformational potential of relations across scales.

5.5 Article 5: Decolonizing Transformations Through 'Right Relations'

In the fifth and final article, I move from theory to practice and reflect on the implications of a relational approach in the context of doing research with Indigenous individuals and communities, including the relationship between transformation and decolonization. Thus, while the previous four articles have predominantly focused on answering theoretical questions that speak to ontology and epistemology, this final article is more specifically focused on what these insights mean methodologically and ethically. Together with my two co-authors, Nicole Schafenacker and Julia Bentz, I inquire into the concept of 'right relations,' as a guiding principle for transformations research and practice, providing partial answers to the question ***How can a relational perspective help decolonize transformations research?***

The question is prompted by the recognition that the notion of sustainability transformations is a Western academic construct and that both adaptation and transformation have significant baggage when it comes to their impacts on Indigenous individuals and communities. Recognizing the intimate links between climate change, transformation and (de)colonization, we argue that for transformations to be equitable and just they must simultaneously deal with colonial pasts and presents.

We engage with the question of how to decolonize transformations research by invoking the idea of 'right relations', drawing from scholarship on decoloniality and Indigenous relationality. Based on this literature and reflecting on our own experiences working with Indigenous communities in the northwestern parts of Turtle Island, we identify four qualities to 'right relations' and speak to how these can be embodied in the research setting using narrative practices.

The article is published as part of a Special Issue on 'the how of transformation,' and suggests ways that 'right relations' can help move focus from *what* needs transforming to *how* we transform in ways that are equitable and just and that support the great need for decolonizing societal systems and practices. It could have worked well to have this article as the first article in this dissertation, since it in many ways serves as an explanation of my methodology. Yet, my thinking on these matters is inherently related to my experience collaborating with Igiugig, and it therefore feels more natural to have it at the end, as an expression of my coming to terms with my own research practice.

6. INSIGHTS, OFFERINGS AND FURTHER QUESTIONS

6.1 Insights and Offerings

The aim of this dissertation has been to ***clarify the role of relations in processes of deliberate transformations toward sustainability*** and ***articulate what new theoretical insights can be gained by taking a relational perspective on such processes.***

The research was further guided by three overarching research questions:

> RQ1 – How do Igiugig community members' perceptions of relations and engagements with them enable deliberate transformations in the community and beyond?
>
> RQ2 – In what ways can a 'deep' relational perspective on deliberate transformations in Igiugig inform a theorization of transformations that accounts for issues of justice and agency?
>
> RQ3 – What are the implications of a 'deep' relational paradigm for how to research and support deliberate transformations in ways that are equitable and just?

Below, I respond to these questions based on the findings from the five articles. Rather than aligning one to one, most of the findings speak to several aspects of the three questions, weaving them together to a whole. I have therefore structured this section along *four main insights* that in various ways speak to the research questions and help me fulfill my research aim.

1) If there is one main insight coming from this research, it is that ***relations matter*** for how individuals and collectives are able to deliberately engage with and further transformations toward sustainability in ways that are equitable and just. In this sense, my work supports the diverse literatures that emphasize the role of relations for sustainability (e.g., Walsh et al., 2021). Besides asserting that relations matter, however, the five articles provide insights into *how* relations come to matter in a particular community context. The research showcases how relations to place, people and social-environmental processes all play a significant role in enabling or disabling individual and collective engagement with transformation. It further shows the entangled nature of such relations and phenomena between places and across scales, asserting the need for a holistic, integrative and relational approach for studying such relations. The research finds that relation to place, and the sense of belonging to place or being owned by a place that can emerge from such relation, is a crucial type of relation that sets the foundation for other forms of relations, e.g., relation to people, self and other species. This is particularly informed by a 'deep' relational understanding of the co-becoming of a place and those who inhabit that place. The research thus aligns with relational approaches to place in

human geography (e.g., Massey, 2005) and sustainability science (e.g., Grenni et al., 2020), but adds to this work a 'deep' relational perspective that enable a non-dualistic understanding of self/place and self/world.

2) A closely related insight is that while relations in and of themselves are important, it is the ***quality of relations*** and how such relations are performed and cared for that informs how such relations translate into sustainability transformations, including how they enable or disable self-determination, self-reliance and wellbeing. This insight relates to the growing body of literature on geographies of care (e.g., Middleton and Samanani, 2021) and the role of care for sustainability transformations (e.g., Moriggi et al., 2020), but adds to such scholarship through the articulation of 'right relations'. Grounded in a 'deep' relationality, 'right relations' indicates a way of understanding and performing relations guided by reciprocity, responsibility, reflexivity and potentiality. The research shows how 'right relations' can help unleash the full potential of transformations in research and practice and to ensure that community transformations support systems change. A 'right relations' lens also helps uncover those processes and perceptions that fracture relations and limit the ability for 'locally' grounded work to have 'global' impact. In the context of Indigenous communities, the ongoing process of colonization embodies a process of fracturing relations, to lands, humans and nonhumans. This emphasizes the intimate relationship between transformations and decolonization and aligns with scholarship that calls for an explicit decolonial lens on sustainability (e.g., Whyte et al., 2018).

3) Drawing on a decolonial and 'right relations' perspective, the research helps unsettle many of the dualisms common in a modernist Western scientific paradigm, including modern/traditional, individual/collective, local/global, and subject/object. In this way, the research aligns with much ongoing work in human geography (e.g., Gibson-Graham, 2002) and within sustainability science (e.g., West et al., 2020) that identifies persistent dualisms as detrimental to sustainable social-environmental relations. Based on a 'deep' relational approach, the research further develops this unsettling through advancing an ontological ***both/and stance of simultaneity***. Drawing on Indigenous relational ontologies and relational social science theories and philosophies, this stance shows how such dualisms can instead be perceived of as dualities and helps inquiring into their co-constitution. Through the emphasis on reciprocity, responsibility reflexivity and potentiality, a 'deep' relationality is especially sensitive to issues of justice. Similarly, the emphasis on emergence and entanglement underlines social change as agential and involving a multitude of beings in the process of becoming. The focus on place helps shed light on how agency and potentiality manifest in 'reality'. Based on these characteristics, a 'deep' relationality has the potential to guide transformations research and practice in ways that are equitable and that accounts for issues of both justice and agency.

4) The research shows the ability of Indigenous relational ontologies and relational social science theories and philosophies to deepen the empirical and theoretical engagement with relations in important and differentiated ways. This points to the possibility and need for turning to such ontologies and perspectives in sustainability transformations research and practice, and for ***'bridge-building'*** between ontologies and across knowledge-systems. This aligns with a growing body of work on the importance of 'bridging' for co-creating knowledge that can inform both the theory and practice of deliberate transformation (e.g., Beling et al., 2018). The research advances this work through suggesting that such bridge-building can be furthered through respectful relationship building grounded in 'right relations'. It further suggests that a certain flexibility of narratives and perspectives among actors involved in transformations might be of importance for building bridges. Rather than flexibility being an unwilful bending to various pressures, flexibility as it is advanced in this research indicates an awareness of one's own perspectives and a willingness and capacity to engage with perspectives of others. Importantly, for bridge-building to be emancipatory and generate transformative knowledge, unequal power relations must be addressed. Similarly, bridge-building must be based on respecting differential worlding practices while acknowledging the entangled co-becoming of humans and nonhumans as inhabitants of planet Earth (Cadena and Blaser, 2018).

The four insights above have important implications for the fields of adaptation, transformation and sustainability. Rather than only focusing on *what* needs changing, the insights speak to *the manner* in which we must engage with transformative change to ensure just, equitable and durable outcomes. A 'deep' relational paradigm implies that we come to matter in our attempts to understand and further transformative change. Equitable and just transformations depend on how we show up and how we understand and honor our responsibility to all our relations within as well as outside the research context. This includes fostering a capacity to balance the need for deep-seated relational approaches and care with the pressing need for action and actionable knowledge. It similarly includes a radical openness coupled with a critical awareness of blind spots and hidden agendas. Finally, it involves an ability to question what we do not fully know that we believe. Working on/within *self* thus becomes an integral part of working on/within *world*. Within the context of increasing social-environmental challenges, we must practice our ability to hold complexity: reflecting on and refining our understandings while simultaneously moving ahead with our engagements with change. Based on a 'deep' relational approach to deliberate transformations in Igiugig, Alaska, the dissertation supports this ongoing work.

6.2 Avenues for Further Inquiry

All of the insights above invite further inquiry. Here, I want to highlight some areas where I see particularly promising avenues for more research to benefit both the theory and practice of transformation.

This research has pointed to the potential for a 'deep' relational theorizing of concepts such as agency, scale and place in the context of sustainability transformations research. More work is needed to bring the insights from this work more fully into dialogue with ongoing conversations within human geography and other fields that have a longer history of relational theorizing (e.g., Howitt, 1998; Massey, 2005). How might the insights of individual/collective, local/global, self/world simultaneity inform existing social change theorizing? Similarly, more attention must be directed to the linkages between persistent colonial systems and relations and society's increasing engagement with transformation. How might a 'deep' relational perspective and approach support ongoing work aimed at dismantling oppressive and unsustainable relations, processes and systems to enable transformations that are equitable and just and that help us care for all of our relations (e.g., Whyte, 2020a)? Relatedly, while notions of power figure throughout the dissertation, especially though de/colonization and interpersonal relations, I have not engaged with the concept theoretically. An explicit and in-depth engagement with what a 'deep' relationality implies for understandings of power is an important next step for research that aims to advance sustainability transformations that are equitable, just and enduring (e.g., Partzsch, 2017).

More work is also needed in terms of the theoretical and practical implications coming from 'bridging-work'. While this research has pointed to some of the ways in which Indigenous and 'deep' relational social science ontologies might resonate, much more work is needed to carefully inquire into how bridging or weaving can be done in practice in the context of sustainability transformations research (e.g., Johnson et al. 2018). The potential bridging between Indigenous and 'quantum ontologies' is an underrepresented area ripe for further inquiry. And finally, as mentioned above, the insights presented through this work are based on a single case study, situated within a particular cultural, geographical and historical context. How might the insights from Igiugig compare and contrast to the experiences and contexts of other communities in Alaska and elsewhere? Or among organizations, institutions and businesses that wish to unleash their transformative potential and help move society towards enhanced sustainability? Comparative studies and work that spans the theory and practice divide can help deepen and nuance the insights of this dissertation.

6.3 On Being 'Small but Mighty': Potentiality and Responsibility in a World of Relations

In closing, I would like to return once more to Igiugig and the people who call this community home, by way of sharing another quote by the Village Council President. In speaking to how they approach their work, she stated that *"there's two very powerful things happening here [in Igiugig]: [we're] so invested [we] can't live elsewhere. And [we] can be the agent of change"* (ORPC, 2020). What I take this to mean, and what I have found in my engagement with the community, is firstly a strong commitment to place and secondly, entangled with this commitment, an awareness of their individual and collective agency for change.

This speaks to the notion of being 'Small but Mighty', introduced at the beginning of this dissertation. Underlying this notion is an incredible sense of agency, an insistence that they are a force in this world; that they are powerful. Yet rather than being able to excerpt power over others, I understand 'Small but Mighty' as a recognition of their active participation in turning potentiality into reality. This recognition is informed by a strong connection to place and a deep-rooted feeling of responsibility for that place, including the generations that came before and are yet to come. Rather than isolationist, however, this rootedness is further grounded in a recognition of the inherent relationality to all other places and all other times. The wellbeing of one hinges on the wellbeing of all, and vice versa. While this may not be a 'new' insight – in fact, it is a very old one – Igiugig and the work presented here tells a story of the very powerful results coming from not only *thinking* this way but *being* this way. "*May others listen and learn*" (Igyararmiut et al., 2021).

Figure 6.3.1 Sunset over the Igiugig homelands (photo by © Nathaniel Wilder, 2021)

REFERENCES

Abate, R.S., Kronk, E.A., 2013. Commonality among unique indigenous communities: an introduction to climate change and its impacts on indigenous peoples, in: Abate, R.S., Kronk, E.A. (Eds.), Climate Change and Indigenous Peoples: The Search for Legal Remedies. Edward Elgar Publishing, pp. 3–18.

Abbott, O., 2020. An Overview of Relational Sociology, in: Abbott, O. (Ed.), The Self, Relational Sociology, and Morality in Practice, Palgrave Studies in Relational Sociology. Springer International Publishing, Cham, pp. 11–47. https://doi.org/10.1007/978-3-030-31822-2_2

Adger, W.N., Lorenzoni, I., O'Brien, K.L. (Eds.), 2009. Adapting to Climate Change: Thresholds, Values, Governance. Cambridge University Press, Cambridge. https://doi.org/10.1017/CBO9780511596667

Ahenakew, C., 2016. Grafting Indigenous Ways of Knowing Onto Non-Indigenous Ways of Being: The (Underestimated) Challenges of a Decolonial Imagination. International Review of Qualitative Research 9, 323–340.

Alaska Venture Fund, n/d. Igiugig Sustainable Future. Alaska Venture Fund. URL https://alaskaventure.org/wp-content/uploads/2021/08/Igiugig-Project-Summary-FV.pdf (accessed 9.27.21).

Alfred, T., 2009. Peace, Power, Righteousness: An Indigenous Manifesto, 2 edition. ed. Oxford University Press, Don Mills, Ont. ; New York.

Alfred, T., Corntassel, J., 2005. Being Indigenous: Resurgences against Contemporary Colonialism. Government and Opposition 40, 597–614. https://doi.org/10.1111/j.1477-7053.2005.00166.x

Allen, J., 2012. A more than relational geography? Dialogues in Human Geography 2, 190–193. https://doi.org/10.1177/2043820612449295

Allen, J., Cochrane, A., 2010. Assemblages of State Power: Topological Shifts in the Organization of Government and Politics. Antipode 42, 1071–1089. https://doi.org/10.1111/j.1467-8330.2010.00794.x

AMAP, 2021. Arctic Climate Change Update 2021: Key Trends and Impacts. Summary for Policy-Makers. Arctic Monitoring and Assessment Programme, Tromsø, Norway.

Amundsen, H., Hermansen, E.A., 2021. Green transformation is a boundary object: An analysis of conceptualisation of transformation in Norwegian primary industries. Environment and Planning E: Nature and Space 4, 864–885. https://doi.org/10.1177/2514848620934337

Anderson, B., Kearnes, M., McFarlane, C., Swanton, D., 2012. On assemblages and geography. Dialogues in Human Geography 2, 171–189. https://doi.org/10.1177/2043820612449261

Baird, R., 2008. The Impact of Climate Change on Minorities and Indigenous Peoples. Minority Rights Group International, London.

Baldwin, A., Erickson, B., 2020. Introduction: Whiteness, coloniality, and the Anthropocene. Environment and Planning D: Society and Space 38, 3–11. https://doi.org/10.1177/0263775820904485

Bamberg, S., Fischer, D., Geiger, S.M., 2021. Editorial: The Role of the Individual in the Great Transformation Toward Sustainability. Front Psychol 12, 710897. https://doi.org/10.3389/fpsyg.2021.710897

Barad, K., 2014. Diffracting Diffraction: Cutting Together-Apart. Parallax 20, 168–187. https://doi.org/10.1080/13534645.2014.927623

Barad, K., 2007. Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning. Duke University Press.

Barad, K., 2003. Posthumanist performativity: Toward an understanding of how matter comes to matter. Signs, Gender and Science: New Issues 28, 801–831.

Barnhardt, C., 2001. A HISTORY OF SCHOOLING FOR ALASKA NATIVE PEOPLE. Journal of American Indian Education 40, 1–30.

Bawaka Country, Suchet-Pearson, S., Wright, S., Lloyd, K., Burarrwanga, L., 2013. Caring *as* Country: Towards an ontology of co-becoming in natural resource management: Caring as Country. Asia Pacific Viewpoint 54, 185–197. https://doi.org/10.1111/apv.12018

Bawaka Country, Wright, S., Suchet-Pearson, S., Lloyd, K., Burarrwanga, L., Ganambarr, R., Ganambarr-Stubbs, M., Ganambarr, B., Maymuru, D., Sweeney, J., 2016. Co-becoming Bawaka: Towards a relational understanding of place/space. Progress in Human Geography 40, 455–475. https://doi.org/10.1177/0309132515589437

Beddoe, R., Costanza, R., Farley, J., Garza, E., Kent, J., Kubiszewski, I., Martinez, L., McCowen, T., Murphy, K., Myers, N., Ogden, Z., Stapleton, K., Woodward, J., 2009. Overcoming systemic roadblocks to sustainability: The evolutionary redesign of worldviews, institutions, and technologies. PNAS 106, 2483–2489. https://doi.org/10.1073/pnas.0812570106

Beling, A.E., Vanhulst, J., Demaria, F., Rabi, V., Carballo, A.E., Pelenc, J., 2018. Discursive Synergies for a 'Great Transformation' Towards Sustainability: Pragmatic Contributions to a Necessary Dialogue Between Human Development, Degrowth, and Buen Vivir. Ecological Economics 144, 304–313. https://doi.org/10.1016/j.ecolecon.2017.08.025

Bennett, E.M., Solan, M., Biggs, R., McPhearson, T., Norström, A.V., Olsson, P., Pereira, L., Peterson, G.D., Raudsepp-Hearne, C., Biermann, F., Carpenter, S.R., Ellis, E.C., Hichert, T., Galaz, V., Lahsen, M., Milkoreit, M., Martin López, B., Nicholas, K.A., Preiser, R., Vince, G., Vervoort, J.M., Xu, J., 2016. Bright spots: seeds of a good Anthropocene. Frontiers in Ecology and the Environment 14, 441–448. https://doi.org/10.1002/fee.1309

Bennett, J., 2018. Whose Place Is This Anyway? An Actor-Network Theory Exploration of a Conservation Conflict. Space and Culture 21, 159–169. https://doi.org/10.1177/1206331217734182

Bennett, J., 2010. Vibrant Matter: A Political Ecology of Things. Duke University Press.

Bennett, N.J., Blythe, J., Cisneros-Montemayor, A.M., Singh, G.G., Sumaila, U.R., 2019. Just Transformations to Sustainability. Sustainability 11, 3881. https://doi.org/10.3390/su11143881

Berger, T.R., 1985. Village Journey: The Report of the Alaska Native Review Commission, 1st edition. ed. Hill & Wang Pub, New York.

Berkes, F., 1999. Sacred Ecology: Traditional Ecological Knowledge and Resource Management. Taylor & Francis.

Blaser, M., 2014. Ontology and indigeneity: on the political ontology of heterogeneous assemblages. cultural geographies 21, 49–58. https://doi.org/10.1177/1474474012462534

Blythe, J., Silver, J., Evans, L., Armitage, D., Bennett, N.J., Moore, M.-L., Morrison, T.H., Brown, K., 2018. The Dark Side of Transformation: Latent Risks in Contemporary Sustainability Discourse. Antipode 50, 1206–1223. https://doi.org/10.1111/anti.12405

Bosco, F.J., 2006. ACTOR-NETWORK THEORY, NETWORKS, AND RELATIONAL APPROACHES IN HUMAN GEOGRAPHY, in: Aitken, S.C., Valentine, G. (Eds.), Approaches to Human Geography. SAGE, London ; Thousand Oaks, Calif, pp. 136–147.

Bouzarovski, S., Haarstad, H., 2019. Rescaling low-carbon transformations: Towards a relational ontology. Transactions of the Institute of British Geographers 44, 256–269. https://doi.org/10.1111/tran.12275

Braidotti, R., 2019. A Theoretical Framework for the Critical Posthumanities. Theory, Culture & Society 026327641877148. https://doi.org/10.1177/0263276418771486

Branson, J. (Ed.), 2006. Our Story: Readings From Southwest Alaska (An Anthology). Anchorage, Alaska.

Bravo, M.T., 2009. Voices from the sea ice: the reception of climate impact narratives. Journal of Historical Geography 35, 256–278. https://doi.org/10.1016/j.jhg.2008.09.007

Brenner, N., Madden, D.J., Wachsmuth, D., 2011. Assemblage urbanism and the challenges of critical urban theory. City 15, 225–240. https://doi.org/10.1080/13604813.2011.568717

Brown, K., Adger, W.N., Devine-Wright, P., Anderies, J.M., Barr, S., Bousquet, F., Butler, C., Evans, L., Marshall, N., Quinn, T., 2019. Empathy, place and identity interactions for sustainability. Global Environmental Change 56, 11–17. https://doi.org/10.1016/j.gloenvcha.2019.03.003
Brown, L.A., Strega, S., 2005. Research as Resistance: Critical, Indigenous and Anti-oppressive Approaches. Canadian Scholars' Press.
Brown, S.R., Danielson, S., van Exel, J., 2015. Overly ambitious critics and the Medici Effect: a reply to Kampen and Tamás. Qual Quant 49, 523–537. https://doi.org/10.1007/s11135-014-0007-x
Byrd, A., 2019. Igiugig - Food, Water, Energy Connections. Alaska Center for Energy and Power UAF.
Cadena, M. de la, Blaser, M. (Eds.), 2018. A world of many worlds. Duke University Press, Durham.
Cadena, M.D.L., 2010. INDIGENOUS COSMOPOLITICS IN THE ANDES: Conceptual Reflections beyond "Politics." Cultural Anthropology 25, 334–370. https://doi.org/10.1111/j.1548-1360.2010.01061.x
Cajete, G., 2000. Native Science: Natural Laws of Interdependence. Clear Light Publishers.
Cameron, E.S., 2012. Securing Indigenous politics: A critique of the vulnerability and adaptation approach to the human dimensions of climate change in the Canadian Arctic. Global Environmental Change 22, 103–114. https://doi.org/10.1016/j.gloenvcha.2011.11.004
Case, D.S., Voluck, D.A., 2012. Alaska Natives and American Laws: Third Edition. University of Alaska Press.
Castree, N., 2021. Framing, deframing and reframing the Anthropocene. Ambio 50, 1788–1792. https://doi.org/10.1007/s13280-020-01437-2
Castree, N., 2005. The epistemology of particulars: Human geography, case studies and 'context.' Geoforum 36, 541–544. https://doi.org/10.1016/j.geoforum.2005.08.001
Chan, K.M.A., Boyd, D.R., Gould, R.K., et al., 2020. Levers and leverage points for pathways to sustainability. People and Nature 2, 693–717. https://doi.org/10.1002/pan3.10124
Charli-Joseph, L., Siqueiros-Garcia, J.M., Eakin, H., Manuel-Navarrete, D., Shelton, R., 2018. Promoting agency for social-ecological transformation: a transformation-lab in the Xochimilco social-ecological system. Ecology and Society 23.
Chilisa, B., 2020. Indigenous research methodologies, 2nd ed. SAGE, London.
Chilisa, B., Major, T.E., Khudu-Petersen, K., 2017. Community engagement with a postcolonial, African-based relational paradigm. Qualitative Research 17, 326–339. https://doi.org/10.1177/1468794117696176
Cirefice, V., Sullivan, L., 2019. Women on the frontlines of resistance to extractivism. Policy & Practice: A Development Education Review Autumn 2019, 78–99.
Clary-Lemon, J., 2019. Gifts, Ancestors, and Relations: Notes Toward an Indigenous New Materialism. Enculturation.
Cole, A., 2017. Towards an Indigenous Transdisciplinarity. Transdisciplinary Journal of Engineering & Science 8. https://doi.org/10.22545/2017/00091
Contesse, M., Duncan, J., Legun, K., Klerkx, L., 2021. Unravelling non-human agency in sustainability transitions. Technological Forecasting and Social Change 166, 120634. https://doi.org/10.1016/j.techfore.2021.120634
Coombes, B., Gombay, N., Johnson, J.T., Shaw, W.S., 2011. The Challenges of and from Indigenous Geographies, in: A Companion to Social Geography. John Wiley & Sons, Ltd, pp. 472–489. https://doi.org/10.1002/9781444395211.ch27
Coulthard, G.S., 2014. Red Skin, White Masks: Rejecting the Colonial Politics of Recognition. University of Minnesota Press.
Darling, J., 2009. Thinking Beyond Place: The Responsibilities of a Relational Spatial Politics. Geography Compass 3, 1938–1954. https://doi.org/10.1111/j.1749-8198.2009.00262.x
Davis, H., Todd, Z., 2017. On the Importance of a Date, or, Decolonizing the Anthropocene. ACME: An International Journal for Critical Geographies 16, 761–780.
de Coninck, H., Revi, A., Babiker, M., Bertoldi, P., Buckeridge, M., Cartwright, A., Dong, W., Ford, J., Fuss, S., Hourcade, J.-C., Ley, D., Mechler, R., Newman, P., Revokatova, A., Schultz, S., Steg, L., Sugiyama, T., 2018. Strengthening and Implementing the Global Response, in: Masson-

Delmotte, V., Zhai, P., Pörtner, H.-O., Roberts, D., Skea, J., Shukla, P.R., Pirani, A., Moufouma-Okia, W., Péan, C., Pidcock, R., Connors, S., Matthews, J.B.R., Chen, Y., Zhou, X., Gomis, M.I., Lonnoy, E., Maycock, T., Tignor, M., Waterfield, T. (Eds.), Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty. IPCC, p. 132.

DeLanda, M., 2006. A New Philosophy of Society: Assemblage Theory and Social Complexity. A&C Black.

Deloria Jr, V., 1979. The Metaphysics of Modern Existence. Fulcrum Publishing, Golden, Colo.

Deloria Jr, V., Wildcat, D.R., 2001. Power and Place: Indian Education in America. Fulcrum Publishing, Golden, CO.

Dépelteau, F., 2018. Relational Thinking in Sociology: Relevance, Concurrence and Dissonance, in: Dépelteau, F. (Ed.), The Palgrave Handbook of Relational Sociology. Springer International Publishing, Cham, pp. 3–33. https://doi.org/10.1007/978-3-319-66005-9_1

DeVault, M.L., Gross, G., 2012. Feminist Qualitative Interviewing: Experience, Talk, and Knowledge, in: Handbook of Feminist Research: Theory and Praxis. SAGE Publications, Inc., 2455 Teller Road, Thousand Oaks California 91320 United States, pp. 206–236. https://doi.org/10.4135/9781483384740.n11

Dewey, J., Bentley, A.F., 1949. Knowing and the Known. Beacon Press.

Dhillon, J., 2018. Introduction: Indigenous Resurgence, Decolonization, and Movements for Environmental Justice. Environment and Society 9, 1–5. https://doi.org/10.3167/ares.2018.090101

Díaz, S., Settele, J., Brondízio, E.S., Ngo, H.T., Agard, J., Arneth, A., Balvanera, P., Brauman, K.A., Butchart, S.H.M., Chan, K.M.A., Garibaldi, L.A., Ichii, K., Liu, J., Subramanian, S.M., Midgley, G.F., Miloslavich, P., Molnár, Z., Obura, D., Pfaff, A., Polasky, S., Purvis, A., Razzaque, J., Reyers, B., Chowdhury, R.R., Shin, Y.-J., Visseren-Hamakers, I., Willis, K.J., Zayas, C.N., 2019. Pervasive human-driven decline of life on Earth points to the need for transformative change. Science 366, eaax3100. https://doi.org/10.1126/science.aax3100

Donmoyer, R., 2000. Generalizability and the single-case study, in: Gomm, R., Hammersley, M., Foster, P. (Eds.), Case Study Method: Key Issues, Key Texts. SAGE, London ; Thousand Oaks, CA; New Delhi, pp. 45–68.

Eden, S., Donaldson, A., Walker, G., 2005. Structuring Subjectivities? Using Q Methodology in Human Geography. Area 37, 413–422.

Eglash, R., Bennett, A., Babbitt, W., Lachney, M., Reinhardt, M., Hammond-Sowah, D., 2020. Decolonizing posthumanism: Indigenous material agency in generative STEM. British Journal of Educational Technology 51, 1334–1353. https://doi.org/10.1111/bjet.12963

Eira, I.M.G., Oskal, A., Hanssen-Bauer, I., Mathiesen, S.D., 2018. Snow cover and the loss of traditional indigenous knowledge. Nature Clim Change 8, 928–931. https://doi.org/10.1038/s41558-018-0319-2

El Khoury, A., 2015. Globalization Development and Social Justice: A propositional political approach. Routledge, Taylor & Francis Group.

Elliott, A., 2020. A Mind Spread Out on the Ground. Melville House.

Elwood, J., Andeorri, V., Stein, S., 2019. Towards Braiding. Musagetes, Guelph, Ontario.

Emerson, R.M., Fretz, R.I., Shaw, L.L., 2011. Writing Ethnographic Fieldnotes, Second Edition, Chicago Guides to Writing, Editing, and Publishing. University of Chicago Press, Chicago, IL.

Emirbayer, M., 1997. Manifesto for a Relational Sociology. American Journal of Sociology 103, 281–317. https://doi.org/10.1086/231209

Eriksen, S., Schipper, E.L.F., Scoville-Simonds, M., Vincent, K., Adam, H.N., Brooks, N., Harding, B., Khatri, D., Lenaerts, L., Liverman, D., Mills-Novoa, M., Mosberg, M., Movik, S., Muok, B., Nightingale, A., Ojha, H., Sygna, L., Taylor, M., Vogel, C., West, J.J., 2021. Adaptation interventions and their effect on vulnerability in developing countries: Help, hindrance or

irrelevance? World Development 141, 105383. https://doi.org/10.1016/j.worlddev.2020.105383
Fazey, I., Moug, P., Allen, S., Beckmann, K., Blackwood, D., Bonaventura, M., Burnett, K., Danson, M., Falconer, R., Gagnon, A.S., Harkness, R., Hodgson, A., Holm, L., Irvine, K.N., Low, R., Lyon, C., Moss, A., Moran, C., Naylor, L., O'Brien, K., Russell, S., Skerratt, S., Rao-Williams, J., Wolstenholme, R., 2017. Transformation in a changing climate: a research agenda. Climate and Development 1–21. https://doi.org/10.1080/17565529.2017.1301864
Fazey, I., Schäpke, N., Caniglia, G., et al., 2020. Transforming knowledge systems for life on Earth: Visions of future systems and how to get there. Energy Research & Social Science 70, 101724. https://doi.org/10.1016/j.erss.2020.101724
Feola, G., 2015. Societal transformation in response to global environmental change: A review of emerging concepts. Ambio 44, 376–390. https://doi.org/10.1007/s13280-014-0582-z
Ferguson, J., Weaselboy, M., 2020. Indigenous sustainable relations: considering land in language and language in land. Current Opinion in Environmental Sustainability, Indigenous Conceptualizations of 'Sustainability' 43, 1–7. https://doi.org/10.1016/j.cosust.2019.11.006
Ferrando, F., 2016. Humans Have Always Been Posthuman: A Spiritual Genealogy of Posthumanism, in: Banerji, D., Paranjape, M.R. (Eds.), Critical Posthumanism and Planetary Futures. Springer India, New Delhi, pp. 243–256. https://doi.org/10.1007/978-81-322-3637-5_15
Ferrando, F., 2013. Posthumanism, Transhumanism, Antihumanism, Metahumanism, and New Materialisms: Differences and Relations 8, 7.
Ferrando, F., 2012. Towards a Posthumanist Methodology: A Statement. Frame. Journal of Literary Studies 25, 9–18.
Few, R., Morchain, D., Spear, D., Mensah, A., Bendapudi, R., 2017. Transformation, adaptation and development: relating concepts to practice. Palgrave Communications 3, 1–9. https://doi.org/10.1057/palcomms.2017.92
Fischer, J., Riechers, M., 2019. A leverage points perspective on sustainability. People and Nature 1, 115–120. https://doi.org/10.1002/pan3.13
Flyvbjerg, B., 2006. Five Misunderstandings About Case-Study Research. Qualitative Inquiry 12, 219–245. https://doi.org/10.1177/1077800405284363
Ford, J.D., King, N., Galappaththi, E.K., Pearce, T., McDowell, G., Harper, S.L., 2020. The Resilience of Indigenous Peoples to Environmental Change. One Earth 2, 532–543. https://doi.org/10.1016/j.oneear.2020.05.014
Ford, J.D., Smit, B., Wandel, J., 2006. Vulnerability to climate change in the Arctic: A case study from Arctic Bay, Canada. Global Environmental Change 16, 145–160. https://doi.org/10.1016/j.gloenvcha.2005.11.007
Forrester, J., Cook, B., Bracken, L., Cinderby, S., Donaldson, A., 2015. Combining participatory mapping with Q-methodology to map stakeholder perceptions of complex environmental problems. Applied Geography 56, 199–208. https://doi.org/10.1016/j.apgeog.2014.11.019
Fox, N.J., Alldred, P., 2020. Sustainability, feminist posthumanism and the unusual capacities of (post)humans. Environmental Sociology 6, 121–131. https://doi.org/10.1080/23251042.2019.1704480
Freire, P., 1970. Pedagogy of the oppressed. Herder and Herder, New York.
Garcia, M.M., Hertz, T., Schluter, M., Preiser, R., Woermann, M., 2020. Adopting process-relational perspectives to tackle the challenges of social-ecological systems research. Ecol. Soc. 25, 29. https://doi.org/10.5751/ES-11425-250129
Garcia-Olp, M., 2018. How Colonization Impacts Identity Through the Generations: A Closer Look at Historical Trauma and Education. University of Denver.
Geels, F.W., 2011. The multi-level perspective on sustainability transitions: Responses to seven criticisms. Environmental Innovation and Societal Transitions 1, 24–40. https://doi.org/10.1016/j.eist.2011.02.002
Geels, F.W., Schot, J., 2007. Typology of sociotechnical transition pathways. Research Policy 36, 399–417. https://doi.org/10.1016/j.respol.2007.01.003

Gergen, K.J., 2011. Relational Being: A Brief Introduction. Journal of Constructivist Psychology 24, 280–282. https://doi.org/10.1080/10720537.2011.593453
Gibson-Graham, J.K., 2008. Diverse economies: performative practices for `other worlds'. Progress in Human Geography 32, 613–632. https://doi.org/10.1177/0309132508090821
Gibson-Graham, J.K., 2002. Beyond Global vs. Local: Economic Politics Outside the Binary Frame, in: Geographies of Power. John Wiley & Sons, Ltd, pp. 25–60. https://doi.org/10.1002/9780470773406.ch1
Gibson-Graham, J.K., Roelvink, G., 2010. An Economic Ethics for the Anthropocene. Antipode 41, 320–346. https://doi.org/10.1111/j.1467-8330.2009.00728.x
Gillard, R., Gouldson, A., Paavola, J., Van Alstine, J., 2016. Transformational responses to climate change: beyond a systems perspective of social change in mitigation and adaptation. WIREs Climate Change 7, 251–265. https://doi.org/10.1002/wcc.384
Glückler, J., Panitz, R., 2021. Unleashing the potential of relational research: A meta-analysis of network studies in human geography. Progress in Human Geography 45, 1531–1557. https://doi.org/10.1177/03091325211002916
Golden, D.M., Audet, C., Smith, M.A. (Peggy), 2015. "Blue-ice": framing climate change and reframing climate change adaptation from the indigenous peoples' perspective in the northern boreal forest of Ontario, Canada. Climate and Development 7, 401–413. https://doi.org/10.1080/17565529.2014.966048
Gordon, R., 2019. 'Why would I want to be anonymous?' Questioning ethical principles of anonymity in cross-cultural feminist research. Gender & Development 27, 541–554. https://doi.org/10.1080/13552074.2019.1664044
Gram-Hanssen, I., 2021. Individual and collective leadership for deliberate transformations: Insights from Indigenous leadership. Leadership 1742715021996486. https://doi.org/10.1177/1742715021996486
Gram-Hanssen, I., 2018. Leaving, staying or belonging: exploring the relationship between formal education, youth mobility and community resilience in rural Alaska. Polar Geography 41, 1–25. https://doi.org/10.1080/1088937X.2017.1414083
Gram-Hanssen, I., 2012. Youth creating sustainable communities in rural Alaska. University of Alaska, Fairbanks, Fairbanks, Alaska.
Gram-Hanssen, I., Under Review. From scaling to relating: quality of relations matter for generating transformative systems change. Annals of the American Association of Geographers.
Gram-Hanssen, I., Schafenacker, N., Bentz, J., 2021. Decolonizing Transformations through 'Right Relations.' Sustainability Science. https://doi.org/10.1007/s11625-021-00960-9
Grandin, J., Haarstad, H., 2020. Transformation as relational mobilisation: The networked geography of Addis Ababa's sustainable transport interventions. Environ Plan D 0263775820963281. https://doi.org/10.1177/0263775820963281
Grenni, S., Soini, K., Horlings, L.G., 2020. The inner dimension of sustainability transformation: how sense of place and values can support sustainable place-shaping. Sustain Sci 15, 411–422. https://doi.org/10.1007/s11625-019-00743-3
Guo, F., Meadows, M.E., Duan, Y., Gao, C., 2020. Geography Pre-Service Teachers' Perspectives on Multimedia Technology and Environmental Education. Sustainability 12, 6903. https://doi.org/10.3390/su12176903
Hamilton, C., 2002. Dualism and sustainability. Ecological Economics 42, 89–99. https://doi.org/10.1016/S0921-8009(02)00051-4
Haraway, D., 1992. The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others, in: Grossberg, L., Nelson, C., Treichler, P. (Eds.), Cultural Studies. Routledge, New York, pp. 295–337.
Haraway, D., 1988. Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective. Feminist Studies 14, 575. https://doi.org/10.2307/3178066
Haraway, D.J., 2016. Staying with the Trouble: Making Kin in the Chthulucene. Duke University Press.

Hardwick, S.W., 2017. Case Study Approach, in: International Encyclopedia of Geography. John Wiley & Sons, Ltd, pp. 1–6. https://doi.org/10.1002/9781118786352.wbieg0186
Harris, L.D., Wasilewski, J., 2004. Indigeneity, an alternative worldview: four R's (relationship, responsibility, reciprocity, redistribution) vs. two P's (power and profit). Sharing the journey towards conscious evolution. Systems Research and Behavioral Science 21, 489–503. https://doi.org/10.1002/sres.631
Haverkamp, J., 2021. Where's the Love? Recentering Indigenous and Feminist Ethics of Care for Engaged Climate Research. Gateways: International Journal of Community Research and Engagement 14. https://doi.org/10.5130/ijcre.v14i2.7782
Hayward, A., Sjoblom, E., Sinclair, S., Cidro, J., 2021. A New Era of Indigenous Research: Community-based Indigenous Research Ethics Protocols in Canada. Journal of Empirical Research on Human Research Ethics 16, 403–417. https://doi.org/10.1177/15562646211023705
Herbert, S., 2010. The Taut Rubber Band: Theory and Empirics in Qualitative Geographic Research, in: DeLyser, D., Herbert, S., Aitken, S., Crang, M., McDowell, L. (Eds.), The SAGE Handbook of Qualitative Geography. SAGE, London ; Thousand Oaks, CA, pp. 69–81.
Hertz, T., Mancilla Garcia, M., Schlüter, M., 2020. From nouns to verbs: How process ontologies enhance our understanding of social-ecological systems understood as complex adaptive systems. People and Nature 2, 328–338. https://doi.org/10.1002/pan3.10079
Hochachka, G., 2021. Finding shared meaning in the Anthropocene: engaging diverse perspectives on climate change. Sustain Sci. https://doi.org/10.1007/s11625-021-00965-4
Hochachka, G., 2020. The scenic route: A developmental approach emphasizes the importance of human interiority in transformative approaches to climate change. Integral Review 16, 187–214.
Hochachka, G., 2019. On matryoshkas and meaning-making: Understanding the plasticity of climate change. Global Environmental Change 57, 101917. https://doi.org/10.1016/j.gloenvcha.2019.05.001
Holas Allimant, I., Demuro, E., 2020. Reading the world anew: Zapatista stories, the denial of singularity, and the creation of a plural world. Journal of Postcolonial Writing 56, 830–844. https://doi.org/10.1080/17449855.2020.1838318
Hölscher, K., Wittmayer, J.M., Loorbach, D., 2018. Transition versus transformation: What's the difference? Environmental Innovation and Societal Transitions 27, 1–3. https://doi.org/10.1016/j.eist.2017.10.007
hooks, bell, 1989. CHOOSING THE MARGIN AS A SPACE OF RADICAL OPENNESS. Framework: The Journal of Cinema and Media 15–23.
Hourdequin, M., 2021. Environmental Ethics: The State of the Question. The Southern Journal of Philosophy 59, 270–308. https://doi.org/10.1111/sjp.12436
Howitt, R., 2021. Indigenous rethinking challenging White academic privilege. Postcolonial Studies 0, 1–6. https://doi.org/10.1080/13688790.2021.2003124
Howitt, R., 2020. Decolonizing People, Place and Country: Nurturing Resilience across Time and Space. Sustainability 12, 5882. https://doi.org/10.3390/su12155882
Howitt, R., 1998. Scale as Relation: Musical Metaphors of Geographical Scale. Area 30, 49–58.
Huggins, R., Thompson, P., 2020. Human agency, entrepreneurship and regional development: a behavioural perspective on economic evolution and innovative transformation. Entrepreneurship & Regional Development 32, 573–589. https://doi.org/10.1080/08985626.2019.1687758
Hulme, M., 2009. Why We Disagree About Climate Change: Understanding Controversy, Inaction and Opportunity. Cambridge University Press, Cambridge. https://doi.org/10.1017/CBO9780511841200
Igiugig Village Council, 2021. Igyaramiut Qallemciit (Volume 24, Issue 1). Igiugig Village Council, Igiugig, AK.
Igiugig Village Council, 2017. Igyaramiut Qallemciit (Volume 20, Issue 6). Igiugig Village Council, Igiugig, AK.

Igiugig Village Council, n.d. Welcome to Igiugig - Tribal Village of Igiugig, Alaska - Lake Iliamna, Kvichak River. URL https://igiugig.com/ (accessed 1.27.22).
Igiugig Village Council, n/d. Igiugig Village Council - Village of Igiugig, Alaska. URL http://www.igiugig.com/tribal-government/igiugig-tribal-village-council (accessed 3.8.21a).
Igiugig Village Council, n/d. Igiugig Native Corporation - Village of Igiugig, Alaska. URL http://www.igiugig.com/visitor-guide/igiugig-native-corporation (accessed 3.8.21b).
Igyararmiut, Woods, E., Lynch, P.J., 2021. Story of Igiugig: Native Sovereignty in Alaska.
IPBES, 2019. Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. IPBES secretariat, Bonn, Germany.
IPCC, 2014. Climate change 2014: Synthesis Report. Summary for Policymakers. IPCC, Geneva, Switzerland.
Ison, R., 2018. Governing the human–environment relationship: systemic practice. Current Opinion in Environmental Sustainability, System dynamics and sustainability 33, 114–123. https://doi.org/10.1016/j.cosust.2018.05.009
Ives, C.D., Freeth, R., Fischer, J., 2020. Inside-out sustainability: The neglect of inner worlds. Ambio 49, 208–217. https://doi.org/10.1007/s13280-019-01187-w
Iwama, M., Marshall, M., Marshall, A., Bartlett, C., 2009. Two-Eyed Seeing and the Language of Healing in Community-Based Research. Canadian Journal of Native Education 32, 3-23,117.
Jackson, P., 2006. Thinking Geographically. Geography 91, 199–204. https://doi.org/10.1080/00167487.2006.12094167
Jakober, A., n.d. Sustaining Culture and Livelihood in Remote Igiugig Village. First Nations Development Institute. URL https://www.firstnations.org/stories/sustaining-culture-and-livelihood-in-remote-igiugig-village/ (accessed 2.23.22).
Johnson, J.T., Howitt, R., Cajete, G., Berkes, F., Louis, R.P., Kliskey, A., 2016. Weaving Indigenous and sustainability sciences to diversify our methods. Sustain Sci 11, 1–11. https://doi.org/10.1007/s11625-015-0349-x
Johnston, P., Everard, M., Santillo, D., Robèrt, K.-H., 2007. Reclaiming the definition of sustainability. Environ Sci Pollut Res Int 14, 60–66. https://doi.org/10.1065/espr2007.01.375
Jones, M., 2009. Phase space: geography, relational thinking, and beyond. Progress in Human Geography 33, 487–506. https://doi.org/10.1177/0309132508101599
Jordhus-Lier, D., Houeland, C., Ellingvåg, T.H., 2021. Alienating assemblages: Working the carbonscape in times of transformation. Progress in Human Geography 03091325211018730. https://doi.org/10.1177/03091325211018730
Kampen, J.K., Tamás, P., 2014. Overly ambitious: contributions and current status of Q methodology. Qual Quant 48, 3109–3126. https://doi.org/10.1007/s11135-013-9944-z
Kanngieser, A., Todd, Z., 2020. From environmental case study to environmental kin study. History and Theory 59, 385–393.
Karlsson, M., Hovelsrud, G.K., 2021. “Everyone comes with their own shade of green”: Negotiating the meaning of transformation in Norway’s agriculture and fisheries sectors. Journal of Rural Studies 81, 259–268. https://doi.org/10.1016/j.jrurstud.2020.10.032
Kates, R.W., 2001. Sustainability Transition: Human–Environment Relationship, in: International Encyclopedia of the Social & Behavioral Sciences. Elsevier, pp. 15325–15329. https://doi.org/10.1016/B0-08-043076-7/04165-6
Kates, R.W., Travis, W.R., Wilbanks, T.J., 2012. Transformational adaptation when incremental adaptations to climate change are insufficient. Proceedings of the National Academy of Sciences 109, 7156–7161. https://doi.org/10.1073/pnas.1115521109
Kawagley, O., Norris-Tull, D., Norris-Tull, R.A., 1998. The Indigenous Worldview of Yupiaq Culture: Its Scientific Nature and Relevance to the Practice and Teaching of Science. Journal of Research in Science Teaching 35, 133–144.
Kerr, J., 2019. Indigenous Education in Higher Education in Canada: Settler Re-Education Through New Materialist Theory, in: Taylor, C.A., Bayley, A. (Eds.), Posthumanism and Higher

Education: Reimagining Pedagogy, Practice and Research. Springer International Publishing, Cham, pp. 313–328. https://doi.org/10.1007/978-3-030-14672-6_18
Kilian, A., Fellows, T.K., Giroux, R., Pennington, J., Kuper, A., Whitehead, C.R., Richardson, L., 2019. Exploring the approaches of non-Indigenous researchers to Indigenous research: a qualitative study. Canadian Medical Association Open Access Journal 7, E504–E509. https://doi.org/10.9778/cmajo.20180204
Kimmerer, R.W., 2013. Braiding Sweetgrass - Indigenous wisdom, scientific knowledge and the teachings of plants. Milkweed Eds.
Kimmerer, R.W., 2012. Searching for synergy: integrating traditional and scientific ecological knowledge in environmental science education. J Environ Stud Sci 2, 317–323. https://doi.org/10.1007/s13412-012-0091-y
Kinkaid, E., 2020. Can assemblage think difference? A feminist critique of assemblage geographies. Progress in Human Geography 44, 457–472. https://doi.org/10.1177/0309132519836162
Knapp, C.N., Reid, R.S., Fernández-Giménez, M.E., Klein, J.A., Galvin, K.A., 2019. Placing Transdisciplinarity in Context: A Review of Approaches to Connect Scholars, Society and Action. Sustainability 11, 4899. https://doi.org/10.3390/su11184899
Koster, R., Baccar, K., Lemelin, R.H., 2012. Moving from research ON, to research WITH and FOR Indigenous communities: A critical reflection on community-based participatory research. The Canadian Geographer / Le Géographe canadien 56, 195–210. https://doi.org/10.1111/j.1541-0064.2012.00428.x
Kuhnlein, H.V., Receveur, O., Soueida, R., Egeland, G.M., 2004. Arctic Indigenous Peoples Experience the Nutrition Transition with Changing Dietary Patterns and Obesity. The Journal of Nutrition 134, 1447–1453. https://doi.org/10.1093/jn/134.6.1447
Kuokkanen, R., 2007. Reshaping the university: Responsibility, Indigenous epistemes and the logic of the gift. UBC Press, Vancouver, BC.
Kuus, M., 2019. Political geography I: Agency. Progress in Human Geography 43, 163–171. https://doi.org/10.1177/0309132517734337
Kvale, S., Brinkmann, S., 2009. InterViews: Learning the Craft of Qualitative Research Interviewing. SAGE.
Lahsen, M., Turnhout, E., 2021. How norms, needs, and power in science obstruct transformations towards sustainability. Environ. Res. Lett. 16, 025008. https://doi.org/10.1088/1748-9326/abdcf0
Laininen, E., 2019. Transforming Our Worldview Towards a Sustainable Future, in: Cook, J.W. (Ed.), Sustainability, Human Well-Being, and the Future of Education. Springer International Publishing, Cham, pp. 161–200. https://doi.org/10.1007/978-3-319-78580-6
Lam, D.P.M., Hinz, E., Lang, D., Tengö, M., Wehrden, H., Martín-López, B., 2020a. Indigenous and local knowledge in sustainability transformations research: a literature review. Ecology and Society 25. https://doi.org/10.5751/ES-11305-250103
Lam, D.P.M., Martín-López, B., Wiek, A., Bennett, E.M., Frantzeskaki, N., Horcea-Milcu, A.I., Lang, D.J., 2020b. Scaling the impact of sustainability initiatives: a typology of amplification processes. Urban Transformations 2, 1–24.
Latour, B., 2007. Reassembling the Social: An Introduction to Actor-Network-Theory. OUP Oxford.
Leeuw, S. de, Hunt, S., 2018. Unsettling decolonizing geographies. Geography Compass 12, e12376. https://doi.org/10.1111/gec3.12376
Lewis, D., Williams, L., Jones, R., 2020. A radical revision of the public health response to environmental crisis in a warming world: contributions of Indigenous knowledges and Indigenous feminist perspectives. Can J Public Health 111, 897–900. https://doi.org/10.17269/s41997-020-00388-1
Licona, A.C., 2005. (B)orderlands' Rhetorics and Representations: The Transformative Potential of Feminist Third-Space Scholarship and Zines. NWSA Journal 17, 104–129.
Linnér, B.-O., Wibeck, V., 2021. Drivers of sustainability transformations: leverage points, contexts and conjunctures. Sustain Sci. https://doi.org/10.1007/s11625-021-00957-4

Linnér, B.-O., Wibeck, V., 2019. Sustainability Transformations: Agents and Drivers across Societies. Cambridge University Press, Cambridge. https://doi.org/10.1017/9781108766975
Little Bear, L., 2000. Jagged Worldviews Colliding, in: Battiste, M. (Ed.), Reclaiming Indigenous Voice and Vision. UBC Press, pp. 77–85.
Loorbach, D., Wittmayer, J., Avelino, F., von Wirth, T., Frantzeskaki, N., 2020. Transformative innovation and translocal diffusion. Environmental Innovation and Societal Transitions 35, 251–260. https://doi.org/10.1016/j.eist.2020.01.009
Loring, P.A., Hinzman, M.S., 2018. "They're All Really Important, But…": Unpacking How People Prioritize Values for the Marine Environment in Haida Gwaii, British Columbia. Ecological Economics 152, 367–377.
Louis, R.P., 2007. Can You Hear us Now? Voices from the Margin: Using Indigenous Methodologies in Geographic Research. Geographical Research 45, 130–139. https://doi.org/10.1111/j.1745-5871.2007.00443.x
Lynch, A.H., Veland, S., 2018. Urgency in the Anthropocene. MIT Press.
MacDonald, K., 2017. My experiences with Indigenist methodologies. Geographical Research 55, 369–378. https://doi.org/10.1111/1745-5871.12241
MacKinnon, I., Williams, L., Waller, A., 2017. The re-indigenization of humanity to Mother Earth: A learning platform to cultivate social-ecological resilience and challenge the Anthropocene. Journal of Sustainability Education 16.
Maldonado, J.K., Colombi, B., Pandya, R. (Eds.), 2014. Climate Change and Indigenous Peoples in the United States: Impacts, Experiences and Actions. Springer International Publishing, Cham. https://doi.org/10.1007/978-3-319-05266-3
Manuel-Navarrete, D., Pelling, M., 2015. Subjectivity and the politics of transformation in response to development and environmental change. Global Environmental Change 35, 558–569. https://doi.org/10.1016/j.gloenvcha.2015.08.012
Markey, S., Halseth, G., Manson, D., 2010. Capacity, scale and place: pragmatic lessons for doing community-based research in the rural setting. The Canadian Geographer / Le Géographe canadien 54, 158–176. https://doi.org/10.1111/j.1541-0064.2009.00284.x
Marsden, D., 2020. Student Profile: Dawn Marsden - Graduate and Postdoctoral Studies - Simon Fraser University. URL https://www.sfu.ca/gradstudies/life-community/people-research/profiles/educ/2020/dawn_marsden.html (accessed 8.27.21).
Marsden, D., 2017. The Cure is in the Cause: A Rationale and Guide for Scaling Up Indigenous Principles & Practices for Resilience and Sustainability. Journal of Sustainability Education March 2017.
Marston, S.A., Jones, J.P., Woodward, K., 2005. Human Geography without Scale. Transactions of the Institute of British Geographers 30, 416–432.
Martin, A., Armijos, M.T., Coolsaet, B., Dawson, N., A. S. Edwards, G., Few, R., Gross-Camp, N., Rodriguez, I., Schroeder, H., G. L. Tebboth, M., White, C.S., 2020. Environmental Justice and Transformations to Sustainability. Environment: Science and Policy for Sustainable Development 62, 19–30. https://doi.org/10.1080/00139157.2020.1820294
Massey, D., 2006. Space, time and political responsibility in the midst of global inequality. Erdkunde 2, 89–95. https://doi.org/10.3112/erdkunde.2006.02.01
Massey, D., 2005. For Space. SAGE, London.
Massey, D., 2004. Geographies of responsibility. Geografiska Annaler: Series B, Human Geography 86, 5–18. https://doi.org/10.1111/j.0435-3684.2004.00150.x
Massey, D., 2002. Globalisation: What does it mean for geography? Geography 87, 293–296.
Mazzocchi, F., 2020. A deeper meaning of sustainability: Insights from indigenous knowledge. The Anthropocene Review 7, 77–93. https://doi.org/10.1177/2053019619898888
McEwan, C., Goodman, M.K., 2010. Place Geography and the Ethics of Care: Introductory Remarks on the Geographies of Ethics, Responsibility and Care. Ethics, Place & Environment 13, 103–112. https://doi.org/10.1080/13668791003778602

McGowan, K., Westley, F., Moore, M.-L., Alexiuk, E., Antadze, N., Geobey, S., Tjornbo, O., 2021. The importance of systems thinking and transformation for social innovation research: the evolution of an approach to social innovation. A Research Agenda for Social Innovation.
McGregor, D., 2018. Mino-Mnaamodzawin: Achieving Indigenous Environmental Justice in Canada. Environment and Society 9, 7–24. https://doi.org/10.3167/ares.2018.090102
McGregor, D., Whitaker, S., Sritharan, M., 2020. Indigenous environmental justice and sustainability. Current Opinion in Environmental Sustainability, Indigenous Conceptualizations of 'Sustainability' 43, 35–40. https://doi.org/10.1016/j.cosust.2020.01.007
Meadows, D.H., 1999. Leverage points: Places to intervene in a system.
Menton, M., Larrea, C., Latorre, S., Martinez-Alier, J., Peck, M., Temper, L., Walter, M., 2020. Environmental justice and the SDGs: from synergies to gaps and contradictions. Sustain Sci 15, 1621–1636. https://doi.org/10.1007/s11625-020-00789-8
Middleton, J., Samanani, F., 2021. Accounting for care within human geography. Transactions of the Institute of British Geographers 46, 29–43. https://doi.org/10.1111/tran.12403
Mitchell, F.M., 2018. Engaging in Indigenous CBPR Within Academia: A Critical Narrative. Affilia 33, 379–394. https://doi.org/10.1177/0886109918762570
Mohanty, C.T., 2003. "Under Western Eyes" Revisited: Feminist Solidarity through Anticapitalist Struggles. Signs 28, 499–535. https://doi.org/10.1086/342914
Moore, J.W., 2017. The Capitalocene, Part I: on the nature and origins of our ecological crisis. The Journal of Peasant Studies 44, 594–630. https://doi.org/10.1080/03066150.2016.1235036
Moore, M.-L., Milkoreit, M., 2020. Imagination and transformations to sustainable and just futures. Elementa: Science of the Anthropocene 8, 081. https://doi.org/10.1525/elementa.2020.081
Moore, M.-L., Riddell, D., Vocisano, D., 2015. Scaling Out, Scaling Up, Scaling Deep: Strategies of Non-profits in Advancing Systemic Social Innovation. The Journal of Corporate Citizenship 67–84.
Moore, M.-L., Tjornbo, O., Enfors, E., Knapp, C., Hodbod, J., Baggio, J., Norström, A., Olsson, P., Biggs, D., 2014. Studying the complexity of change: toward an analytical framework for understanding deliberate social-ecological transformations. Ecology and Society 19. https://doi.org/10.5751/ES-06966-190454
Moriggi, A., Soini, K., Franklin, A., Roep, D., 2020. A Care-Based Approach to Transformative Change: Ethically-Informed Practices, Relational Response-Ability & Emotional Awareness. Ethics, Policy & Environment 23, 281–298. https://doi.org/10.1080/21550085.2020.1848186
Müller, M., 2015. Assemblages and Actor-networks: Rethinking Socio-material Power, Politics and Space. Geography Compass 9, 27–41. https://doi.org/10.1111/gec3.12192
Nakamura, N., 2010. Indigenous Methodologies: Suggestions for Junior Researchers. Geographical Research 48, 97–103. https://doi.org/10.1111/j.1745-5871.2009.00625.x
Napoleon, H., 1996. Yuuyaraq: The Way of the Human Being. Alaska Native Knowledge Network, Fairbanks, Alaska.
Naylor, L., Daigle, M., Zaragocin, S., Ramírez, M.M., Gilmartin, M., 2018. Interventions: Bringing the decolonial to political geography. Political Geography 66, 199–209. https://doi.org/10.1016/j.polgeo.2017.11.002
Nightingale, A.J., 2020. Triangulation, in: Kobayashi, A. (Ed.), International Encyclopedia of Human Geography (Second Edition). Elsevier, Oxford, pp. 477–480. https://doi.org/10.1016/B978-0-08-102295-5.10437-8
Nightingale, A.J., Gonda, N., Eriksen, S.H., 2022. Affective adaptation = effective transformation? Shifting the politics of climate change adaptation and transformation from the status quo. WIREs Climate Change 13, e740. https://doi.org/10.1002/wcc.740
Nirmal, P., 2016. Being and Knowing Differently in Living Worlds: Rooted Networks and Relational Webs in Indigenous Geographies, in: Harcourt, W. (Ed.), The Palgrave Handbook of Gender and Development. Palgrave Macmillan UK, London, pp. 232–250. https://doi.org/10.1007/978-1-137-38273-3_16
No'kmaaq, M., Marshall, A., Beazley, K., Hum, J., shalan, j., Papadopoulos, A., Pictou, S., Rabesca, J., Young, L., Zurba, M., 2021. "Awakening the sleeping giant": re-Indigenization principles for

transforming biodiversity conservation in Canada and beyond. FACETS 6, 839–869. https://doi.org/10.1139/facets-2020-0083
Nuttall, M., 2007. An environment at risk: Arctic indigenous peoples, local livelihoods and climate change, in: Ørbæk, J.B., Kallenborn, R., Tombre, I., Hegseth, E.N., Falk-Petersen, S., Hoel, A.H. (Eds.), Arctic Alpine Ecosystems and People in a Changing Environment. Springer, Berlin, Heidelberg, pp. 19–35. https://doi.org/10.1007/978-3-540-48514-8_2
O'Brien, K., 2021a. Reflecting on the Anthropocene: The Call for Deeper Transformations. Ambio. https://doi.org/10.1007/s13280-020-01468-9
O'Brien, K., 2021b. You Matter More Than You Think: Quantum Social Change for a Thriving World. cCHANGE press, Oslo.
O'Brien, K., 2018. Is the 1.5°C target possible? Exploring the three spheres of transformation. Current Opinion in Environmental Sustainability, Sustainability governance and transformation 2018 31, 153–160. https://doi.org/10.1016/j.cosust.2018.04.010
O'Brien, K., 2015. Political agency: The key to tackling climate change. Science 350, 1170–1171. https://doi.org/10.1126/science.aad0267
O'Brien, K., 2012. Global environmental change II: From adaptation to deliberate transformation. Progress in Human Geography 36, 667–676. https://doi.org/10.1177/0309132511425767
O'Brien, K., 2011. Responding to environmental change: A new age for human geography? Progress in Human Geography 35, 542–549. https://doi.org/10.1177/0309132510377573
O'Brien, K., Sygna, L., 2013. Responding to climate change: the three spheres of transformation. Proceedings of Transformation in a Changing Climate 19–21.
O'Brien, K.L., 2016. Climate change and social transformations: is it time for a quantum leap? Wiley Interdisciplinary Reviews: Climate Change 7, 618–626. https://doi.org/10.1002/wcc.413
Olsen, T.A., 2018. Privilege, Decentering and the Challenge of Being (Non-) Indigenous in the Study of Indigenous Issues. The Australian Journal of Indigenous Education 47, 206–215. https://doi.org/10.1017/jie.2017.16
Olsson, P., Galaz, V., Boonstra, W.J., 2014. Sustainability transformations: a resilience perspective. Ecology and Society 19.
ORPC, 2020. Sustainable, Off Grid Energy for Communities from Free Flowing Rivers.
Otto, I.M., Wiedermann, M., Cremades, R., Donges, J.F., Auer, C., Lucht, W., 2020. Human agency in the Anthropocene. Ecological Economics 167, 106463. https://doi.org/10.1016/j.ecolecon.2019.106463
Page, G.G., Wise, R.M., Lindenfeld, L., Moug, P., Hodgson, A., Wyborn, C., Fazey, I., 2016. Co-designing transformation research: lessons learned from research on deliberate practices for transformation. Current Opinion in Environmental Sustainability, Sustainability challenges 20, 86–92. https://doi.org/10.1016/j.cosust.2016.09.001
Parcell, E.S., Baker, B.M.A., 2018. Narrative Analysis, in: Allen, M. (Ed.), The SAGE Encyclopedia of Communication Research Methods. SAGE Publications, Inc, 2455 Teller Road, Thousand Oaks California 91320, pp. 1069–1072. https://doi.org/10.4135/9781483381411.n368
Park, S.E., Marshall, N.A., Jakku, E., Dowd, A.M., Howden, S.M., Mendham, E., Fleming, A., 2012. Informing adaptation responses to climate change through theories of transformation. Global Environmental Change 22, 115–126. https://doi.org/10.1016/j.gloenvcha.2011.10.003
Parsons, M., Nalau, J., 2016. Historical analogies as tools in understanding transformation. Global Environmental Change 38, 82–96. https://doi.org/10.1016/j.gloenvcha.2016.01.010
Partzsch, L., 2017. 'Power with' and 'power to' in environmental politics and the transition to sustainability. Environmental Politics 26, 193–211. https://doi.org/10.1080/09644016.2016.1256961
Patterson, J., Schulz, K., Vervoort, J., van der Hel, S., Widerberg, O., Adler, C., Hurlbert, M., Anderton, K., Sethi, M., Barau, A., 2017. Exploring the governance and politics of transformations towards sustainability. Environmental Innovation and Societal Transitions 24, 1–16. https://doi.org/10.1016/j.eist.2016.09.001

Pelling, M., 2011. Adaptation to Climate Change: From Resilience to Transformation. Routledge, London; New York.
Pesch, U., 2015. Tracing discursive space: Agency and change in sustainability transitions. Technological Forecasting and Social Change 90, 379–388. https://doi.org/10.1016/j.techfore.2014.05.009
Pickering, J., Hickmann, T., Bäckstrand, K., Kalfagianni, A., Bloomfield, M., Mert, A., Ransan-Cooper, H., Lo, A.Y., 2022. Democratising sustainability transformations: Assessing the transformative potential of democratic practices in environmental governance. Earth System Governance 11, 100131. https://doi.org/10.1016/j.esg.2021.100131
Pierce, J., Martin, D.G., Murphy, J.T., 2011. Relational place-making: the networked politics of place. Transactions of the Institute of British Geographers 36, 54–70. https://doi.org/10.1111/j.1475-5661.2010.00411.x
Popke, J., 2009. Geography and ethics: non-representational encounters, collective responsibility and economic difference. Progress in Human Geography 33, 81–90. https://doi.org/10.1177/0309132508090441
Popke, J., 2007. Geography and ethics: spaces of cosmopolitan responsibility. Progress in Human Geography 31, 509–518. https://doi.org/10.1177/0309132507077090
Powell, C., 2013. Radical Relationism: A Proposal, in: Powell, C., Dépelteau, F. (Eds.), Conceptualizing Relational Sociology: Ontological and Theoretical Issues. Palgrave Macmillan US, New York, pp. 187–207. https://doi.org/10.1057/9781137342652_11
Priebe, J., Mårald, E., Nordin, A., 2021. Narrow pasts and futures: how frames of sustainability transformation limit societal change. J Environ Stud Sci 11, 76–84. https://doi.org/10.1007/s13412-020-00636-3
Priebe, J., Reimerson, E., Hallberg-Sramek, I., Sténs, A., Sandström, C., Mårald, E., 2022. Transformative change in context—stakeholders' understandings of leverage at the forest–climate nexus. Sustain Sci. https://doi.org/10.1007/s11625-022-01090-6
Radcliffe, Sarah A, 2017. Decolonising geographical knowledges. Transactions of the Institute of British Geographers 42, 329–333. https://doi.org/10.1111/tran.12195
Radcliffe, Sarah A., 2017. Geography and indigeneity I: Indigeneity, coloniality and knowledge. Progress in Human Geography 41, 220–229. https://doi.org/10.1177/0309132515612952
Radcliffe, S.A., Radhuber, I.M., 2020. The political geographies of D/decolonization: Variegation and decolonial challenges of /in geography. Political Geography 78, 102128. https://doi.org/10.1016/j.polgeo.2019.102128
Ragin, C.C., Amoroso, L.M., 2010. Constructing Social Research: The Unity and Diversity of Method, Second edition. ed. SAGE Publications, Inc, Los Angeles.
Ramcilovic-Suominen, S., 2022. Envisioning just transformations in and beyond the EU bioeconomy: inspirations from decolonial environmental justice and degrowth. Sustain Sci. https://doi.org/10.1007/s11625-022-01091-5
Ramlo, S., 2016. Mixed Method Lessons Learned From 80 Years of Q Methodology. Journal of Mixed Methods Research 10, 28–45. https://doi.org/10.1177/1558689815610998
Ramsey, J.L., 2015. On Not Defining Sustainability. J Agric Environ Ethics 28, 1075–1087. https://doi.org/10.1007/s10806-015-9578-3
Ravenscroft, A., 2018. Strange Weather: Indigenous Materialisms, New Materialism, and Colonialism. Cambridge Journal of Postcolonial Literary Inquiry 5, 353–370. https://doi.org/10.1017/pli.2018.9
Reid, A.J., Eckert, L.E., Lane, J.-F., Young, N., Hinch, S.G., Darimont, C.T., Cooke, S.J., Ban, N.C., Marshall, A., 2021. "Two-Eyed Seeing": An Indigenous framework to transform fisheries research and management. Fish and Fisheries 22, 243–261. https://doi.org/10.1111/faf.12516
Revilla, B.P., Salet, W., 2018. The social meaning and function of household food rituals in preventing food waste. Journal of Cleaner Production 198, 320–332. https://doi.org/10.1016/j.jclepro.2018.06.038

Riechers, M., Balázsi, Á., García-Llorente, M., Loos, J., 2021. Human-nature connectedness as leverage point. Ecosystems and People 17, 215–221. https://doi.org/10.1080/26395916.2021.1912830
Riedy, C., 2021. Discursive entrepreneurship: ethical meaning-making as a transformative practice for sustainable futures. Sustain Sci. https://doi.org/10.1007/s11625-021-00978-z
Rigolot, C., 2020. Transdisciplinarity as a discipline and a way of being: complementarities and creative tensions. Humanit Soc Sci Commun 7, 100. https://doi.org/10.1057/s41599-020-00598-5
Robbins, P., Krueger, R., 2000. Beyond Bias? The Promise and Limits of Q Method in Human Geography. The Professional Geographer 52, 636–648. https://doi.org/10.1111/0033-0124.00252
Robinson, J., 2004. Squaring the circle? Some thoughts on the idea of sustainable development. Ecological Economics 48, 369–384. https://doi.org/10.1016/j.ecolecon.2003.10.017
Rocheleau, D., 2016. Rooted Networks, Webs of Relation, and the Power of Situated Science: Bringing the Models Back Down to Earth in Zambrana, in: Harcourt, W. (Ed.), The Palgrave Handbook of Gender and Development: Critical Engagements in Feminist Theory and Practice. Palgrave Macmillan UK, London, pp. 213–231. https://doi.org/10.1007/978-1-137-38273-3_15
Romm, N.R.A., 2018. Foregrounding Critical Systemic and Indigenous Ways of Collective Knowing Toward (Re)Directing the Anthropocene, in: McIntyre-Mills, J., Romm, N., Corcoran-Nantes, Y. (Eds.), Balancing Individualism and Collectivism: Social and Environmental Justice, Contemporary Systems Thinking. Springer International Publishing, Cham, pp. 1–17. https://doi.org/10.1007/978-3-319-58014-2_1
Rosenberg, M.N., 2021. What matters? The role of values in transformations toward sustainability: a case study of coffee production in Burundi. Sustain Sci. https://doi.org/10.1007/s11625-021-00974-3
Rosiek, J.L., Snyder, J., 2018. Narrative Inquiry and New Materialism: Stories as (Not Necessarily Benign) Agents. Qualitative Inquiry 1077800418784326. https://doi.org/10.1177/1077800418784326
Rosiek, J.L., Snyder, J., Pratt, S.L., 2020. The New Materialisms and Indigenous Theories of Non-Human Agency: Making the Case for Respectful Anti-Colonial Engagement. Qualitative Inquiry 26, 331–346. https://doi.org/10.1177/1077800419830135
Rout, M., Reid, J., 2020. Embracing indigenous metaphors: a new/old way of thinking about sustainability. Sustain Sci. https://doi.org/10.1007/s11625-020-00783-0
Salmon, A., 2021. “Ara Tī: Centrality of Wellbeing for Vibrant Regenerative Economies”. Presentation given at the Te Aratini Festival of Indigenous & Tribal Ideas, Dubai Exhibition Centre, 17-19 November 2021. URL https://www.youtube.com/watch?v=8kcTSo46Vxo (accessed 22.12.2021)
Salmon, A., 2008. “Igyararmiunguunga”: qallemciq nunaka man’i kuicaraami-llu = “I belong to Igiugig”: the story of my home on the Kvichak River (Undergraduate Honors Thesis). Dartmouth College.
Salomaa, A., Juhola, S., 2020. How to assess sustainability transformations: a review. Glob. Sustain. 3, e24. https://doi.org/10.1017/sus.2020.17
Schneider, F., Giger, M., Harari, N., Moser, S., Oberlack, C., Providoli, I., Schmid, L., Tribaldos, T., Zimmermann, A., 2019. Transdisciplinary co-production of knowledge and sustainability transformations: Three generic mechanisms of impact generation. Environmental Science & Policy 102, 26–35. https://doi.org/10.1016/j.envsci.2019.08.017
Scoones, I., Stirling, A., Abrol, D., Atela, J., Charli-Joseph, L., Eakin, H., Ely, A., Olsson, P., Pereira, L., Priya, R., van Zwanenberg, P., Yang, L., 2020. Transformations to sustainability: combining structural, systemic and enabling approaches. Current Opinion in Environmental Sustainability, Advancing the science of actionable knowledge for sustainability 42, 65–75. https://doi.org/10.1016/j.cosust.2019.12.004

Scott, J.C., 1990. Domination and the arts of resistance: Hidden transcripts, Domination and the arts of resistance: Hidden transcripts. Yale University Press, New Haven, CT, US.
Selg, P., Ventsel, A., 2020. Introducing Relational Political Analysis: Political Semiotics as a Theory and Method. Springer International Publishing, Cham. https://doi.org/10.1007/978-3-030-48780-5
Sellberg, M.M., Cockburn, J., Holden, P.B., Lam, D.P.M., 2021. Towards a caring transdisciplinary research practice: navigating science, society and self. Ecosystems and People 17, 292–305. https://doi.org/10.1080/26395916.2021.1931452
Sequist, T.D., 2021. Improving the Health of the American Indian and Alaska Native Population. JAMA 325, 1035–1036. https://doi.org/10.1001/jama.2021.0521
Sharma, M., 2007. Personal to Planetary Transformation. Kosmos Journal. URL http://www.kosmosjournal.org/article/personal-to-planetary-transformation/ (accessed 4.4.17).
Shaw, W.S., Herman, R.D.K., Dobbs, G.R., 2006. Encountering Indigeneity: Re-Imagining and Decolonizing Geography. Geografiska Annaler. Series B, Human Geography 88, 267–276.
Shi, L., Moser, S., 2021. Transformative climate adaptation in the United States: Trends and prospects. Science. https://doi.org/10.1126/science.abc8054
Simpson, B., 2016. Where's the agency in leadership-as-practice?, in: Raelin, J.A. (Ed.), Leadership-as-Practice: Theory and Application. Routledge, New York, pp. 159–177.
Simpson, L., 2011. Dancing on Our Turtle's Back: Stories of Nishnaabeg Re-creation, Resurgence and a New Emergence. Arbeiter Ring Pub.
Smith, A., 2013. Unsettling the Privilege of Self-Reflexivity, in: Twine, F.W., Gardener, B. (Eds.), Geographies of Privilege. Routledge, New York, NY, pp. 263–280.
Smith, L.T., 2014. Social Justice, Transformation and Indigenous Methodologies, in: Rinehart, R.E., Barbour, K.N., Pope, C.C. (Eds.), Ethnographic Worldviews: Transformations and Social Justice. Springer Netherlands, Dordrecht, pp. 15–20. https://doi.org/10.1007/978-94-007-6916-8_2
Smith, L.T., 1999. Decolonizing Methodologies: Research and Indigenous Peoples. Zed Books Ltd., London.
Sneegas, G., 2019. Making the Case for Critical Q Methodology. The Professional Geographer 0, 1–10. https://doi.org/10.1080/00330124.2019.1598271
Sneegas, G., Beckner, S., Brannstrom, C., Jepson, W., Lee, K., Seghezzo, L., 2021. Using Q-methodology in environmental sustainability research: A bibliometric analysis and systematic review. Ecological Economics 180, 106864. https://doi.org/10.1016/j.ecolecon.2020.106864
Southam, T., 2021. PORTFOLIO: Academics as Allies and Accomplices: Practices for Decolonized Solidarity. Anthropology & Aging 42, 150–165. https://doi.org/10.5195/aa.2021.366
Stanton, C.R., 2014. Crossing Methodological Borders: Decolonizing Community-Based Participatory Research. Qualitative Inquiry 20, 573–583. https://doi.org/10.1177/1077800413505541
Steffen, W., Richardson, K., Rockström, J., Cornell, S.E., Fetzer, I., Bennett, E.M., Biggs, R., Carpenter, S.R., Vries, W. de, Wit, C.A. de, Folke, C., Gerten, D., Heinke, J., Mace, G.M., Persson, L.M., Ramanathan, V., Reyers, B., Sörlin, S., 2015. Planetary boundaries: Guiding human development on a changing planet. Science 347, 1259855. https://doi.org/10.1126/science.1259855
Steffen, W., Rockström, J., Richardson, K., Lenton, T.M., Folke, C., Liverman, D., Summerhayes, C.P., Barnosky, A.D., Cornell, S.E., Crucifix, M., Donges, J.F., Fetzer, I., Lade, S.J., Scheffer, M., Winkelmann, R., Schellnhuber, H.J., 2018. Trajectories of the Earth System in the Anthropocene. PNAS 115, 8252–8259. https://doi.org/10.1073/pnas.1810141115
Stephen, K., 2018. Societal Impacts of a Rapidly Changing Arctic. Curr Clim Change Rep 4, 223–237. https://doi.org/10.1007/s40641-018-0106-1
Stephenson, W., 1983. Quantum Theory and Q-Methodology: Fictionalistic and Probabilistic Theories Conjoined. Psychol Rec 33, 213–230. https://doi.org/10.1007/BF03394839

Stephenson, W., 1953. The study of behavior: Q-technique and its methodology. University of Chicago Press, Chicago.
Stephenson, W., 1936. The foundations of psychometry: Four factor systems. Psychometrika 1, 195–209. https://doi.org/10.1007/BF02288366
Stirling, A., 2015. Emancipating transformations: from controlling 'the transition' to culturing plural radical progress, in: Scoones, I., Leach, M., Newell, P. (Eds.), The Politics of Green Transformations. Earthscan, London, pp. 54–67. https://doi.org/10.4324/9781315747378-11
Sugarman, J., Martin, J., 2011. Theorizing Relational Agency. Journal of Constructivist Psychology 24, 283–289. https://doi.org/10.1080/10720537.2011.593455
Summit, B., 1997. The Alaska Native Claims Settlement Act (ANCSA): Friend or Foe in the Struggle to Recover Alaska Native Heritage Student Article. T. M. Cooley L. Rev. 14, 607–632.
Sundberg, J., 2014. Decolonizing posthumanist geographies. cultural geographies 21, 33–47. https://doi.org/10.1177/1474474013486067
Swyngedouw, E., 2010. Apocalypse Forever? Theory, Culture & Society 27, 213–232. https://doi.org/10.1177/0263276409358728
TallBear, K., 2019. Feminist, Queer, and Indigenous Thinking as an Antidote to Masculinist Objectivity and Binary Thinking in Biological Anthropology. American Anthropologist 121, 494–496. https://doi.org/10.1111/aman.13229
TallBear, K., 2014. Standing With and Speaking as Faith: A Feminist-Indigenous Approach to Inquiry. Journal of Research Practice 10, N17–N17.
Termeer, C.J.A.M., Dewulf, A., Biesbroek, G.R., 2017. Transformational change: governance interventions for climate change adaptation from a continuous change perspective. Journal of Environmental Planning and Management 60, 558–576. https://doi.org/10.1080/09640568.2016.1168288
Thomas, A., 2022. Indigenous knowledge is not an extractable resource. Academia Letters 3832. https://doi.org/10.20935/AL3832
Thompson Klein, J., 2004. Prospects for transdisciplinarity. Futures, Transdisciplinarity 36, 515–526. https://doi.org/10.1016/j.futures.2003.10.007
Tickner, A.B., Querejazu, A., 2021. Weaving Worlds: *Cosmopraxis* as Relational Sensibility. International Studies Review 23, 391–408. https://doi.org/10.1093/isr/viaa100
Todd, Z., 2016. An Indigenous Feminist's Take On The Ontological Turn: 'Ontology' Is Just Another Word For Colonialism. Journal of Historical Sociology 29, 4–22. https://doi.org/10.1111/johs.12124
Trudell, J., 2001. What It Means To Be A Human Being.
Tsing, A.L., 2015. The Mushroom at the End of the World. Princeton University Press, Princeton, NJ.
Tuck, E., Yang, K.W., 2012. Decolonization is not a metaphor. Decolonization: Indigeneity, education & society 1.
TWI2050, 2018. Transformations to Achieve the Sustainable Development Goals, Report prepared by The World in 2050 initiative. International Institute for Applied Systems Analysis, Luxenburg, Austria.
Ungar, M., McRuer, J., Liu, X., Theron, L., Blais, D., Schnurr, M., 2020. Social-ecological resilience through a biocultural lens: a participatory methodology to support global targets and local priorities. Ecology and Society 25. https://doi.org/10.5751/ES-11621-250308
United Nations, 2013. The United Nations declaration on the rights of indigenous peoples: a manual for national rights institutions. United Nations, New York, N.Y.
US Census Bureau, 2017. American Indian and Alaska Native Heritage Month: November 2017.
van der Leeuw, S., 2020. The role of narratives in human-environmental relations: an essay on elaborating win-win solutions to climate change and sustainability. Climatic Change 160, 509–519. https://doi.org/10.1007/s10584-019-02403-y
VanStone, J.W., 1967. Eskimos of the Nushagak River: An Ethnographic History. University of Washington Press.

Vásquez-Fernández, A.M., Ahenakew pii tai poo taa, C., 2020. Resurgence of relationality: reflections on decolonizing and indigenizing 'sustainable development.' Current Opinion in Environmental Sustainability, Indigenous Conceptualizations of 'Sustainability' 43, 65–70. https://doi.org/10.1016/j.cosust.2020.03.005
Veland, S., Lynch, A.H., 2016. Scaling the Anthropocene: How the stories we tell matter. Geoforum 72, 1–5. https://doi.org/10.1016/j.geoforum.2016.03.006
Veland, S., Scoville-Simonds, M., Gram-Hanssen, I., Schorre, A., El Khoury, A., Nordbø, M., Lynch, A., Hochachka, G., Bjørkan, M., 2018. Narrative matters for sustainability: the transformative role of storytelling in realizing 1.5°C futures. Current Opinion in Environmental Sustainability, Sustainability governance and transformation 2018 31, 41–47. https://doi.org/10.1016/j.cosust.2017.12.005
Villarroel, M.A., Clarke, T.C., Norris, T., 2020. Health of American Indian and Alaska Native Adults, by Urbanization Level: United States, 2014–2018 (No. 372). U.S Department of Health and Human Services.
Waddock, S., 2016. Foundational Memes for a New Narrative About the Role of Business in Society. Humanist Manag J 1, 91–105. https://doi.org/10.1007/s41463-016-0012-4
Waddock, S., Waddell, S., Goldstein, B., Linnér, B.-O., Schäpke, N., Vogel, C., 2020. Transformation: How to Spur Radical Change, in: Scrutton, A. (Ed.), Our Future on Earth Report. Future Earth, pp. 82–89.
Walford, G., 2005. Research ethical guidelines and anonymity. International Journal of Research & Method in Education 28, 83–93. https://doi.org/10.1080/01406720500036786
Walker, B., Holling, C.S., Carpenter, S.R., Kinzig, A.P., 2004. Resilience, Adaptability and Transformability in Social-ecological Systems. Ecology and Society 9. https://doi.org/10.5751/ES-00650-090205
Walker, G., 2011. Environmental Justice: Concepts, Evidence and Politics. Routledge, London. https://doi.org/10.4324/9780203610671
Walsh, Z., Böhme, J., Wamsler, C., 2021. Towards a relational paradigm in sustainability research, practice, andeducation. Ambio 50, 74–84. https://doi.org/10.1007/s13280-020-01322-y
Wamsler, C., Osberg, G., Osika, W., Herndersson, H., Mundaca, L., 2021. Linking internal and external transformation for sustainability and climate action: Towards a new research and policy agenda. Global Environmental Change 71, 102373. https://doi.org/10.1016/j.gloenvcha.2021.102373
Wanvik, T.I., Haarstad, H., 2021. Populism, Instability, and Rupture in Sustainability Transformations. Annals of the American Association of Geographers 111, 2096–2111. https://doi.org/10.1080/24694452.2020.1866486
Watson, A., Till, K.E., 2010. Ethnography and Participant Observation, in: DeLyser, D., Herbert, S., Aitken, S., Crang, M., McDowell, L. (Eds.), The SAGE Handbook of Qualitative Geography. SAGE, London ; Thousand Oaks, CA, pp. 121–137.
Watts, S., Stenner, P., 2012. Doing Q Methodological Research: Theory, Method and Interpretation. SAGE Publications Ltd, 1 Oliver's Yard, 55 City Road, London EC1Y 1SP United Kingdom. https://doi.org/10.4135/9781446251911
Watts, S., Stenner, P., 2005. Doing Q Methodology: theory, method and interpretation. Qualitative Research in Psychology 2, 67–91. https://doi.org/10.1191/1478088705qp022oa
Watts, S., Stenner, P., 2003. Q methodology, quantum theory and psychology. Operant Subjectivity 26, 155–173.
Watts, V., 2013. Indigenous Place-Thought and Agency Amongst Humans and Non Humans (First Woman and Sky Woman Go On a European World Tour!). Decolonization: Indigeneity, Education & Society 2, 20–34.
Weber, A., Kurt, H., 2015. Towards Cultures of Aliveness: Politics and Poetics in a Postdualistic Age, an Anthropocene Manifesto. The Solutions Journal 6, 58–65.
Wendt, A., 2015. Quantum Mind and Social Science: Unifying Physical and Social Ontology. Cambridge University Press, Cambridge, United Kingdom ; New York.

Werbeloff, L., Brown, R.R., Loorbach, D., 2016. Pathways of system transformation: Strategic agency to support regime change. Environmental Science & Policy 66, 119–128. https://doi.org/10.1016/j.envsci.2016.08.010
West, S., Haider, L.J., Stålhammar, S., Woroniecki, S., 2020. A relational turn for sustainability science? Relational thinking, leverage points and transformations. Ecosystems and People 16, 304–325. https://doi.org/10.1080/26395916.2020.1814417
Westley, F., Tjornbo, O., Schultz, L., Olsson, P., Folke, C., Crona, B., Bodin, Ö., 2013. A Theory of Transformative Agency in Linked Social-Ecological Systems. Ecology and Society 18. https://doi.org/10.5751/ES-05072-180327
Westskog, H., Aarsæther, N., Hovelsrud, G.K., Amundsen, H., West, J.J., Dale, R.F., 2022. The transformative potential of local-level planning and climate policies. Case studies from Norwegian municipalities. Cogent Social Sciences 8, 2033457. https://doi.org/10.1080/23311886.2022.2033457
Wexler, L., 2009. Identifying Colonial Discourses in Inupiat Young People's Narratives as a Way to Understand the No Future of Inupiat Youth Suicide. American Indian and Alaska Native Mental Health Research 16, 1–24. https://doi.org/10.5820/aian.1601.2009.1
Whatmore, S., 2006. Materialist returns: practising cultural geography in and for a more-than-human world. cultural geographies 13, 600–609. https://doi.org/10.1191/1474474006cgj377oa
Whyte, K.P., 2020a. Too late for indigenous climate justice: Ecological and relational tipping points. WIREs Climate Change 11, e603. https://doi.org/10.1002/wcc.603
Whyte, K.P., 2020b. Against Crisis Epistemology, in: Hokowhitu, B., Moreton-Robinson, A., Smith, L.T., Andersen, C., Larkin, S. (Eds.), Routledge Handbook of Critical Indigenous Studies. Routledge.
Whyte, K.P., 2018. The Dakota Access Pipeline, Environmental Injustice, and US Settler Colonialism, in: Miller, C., Crane, J. (Eds.), The Nature of Hope, Grassroots Organizing, Environmental Justice, and Political Change. University Press of Colorado, pp. 320–338.
Whyte, K.P., Brewer, J.P., Johnson, J.T., 2016. Weaving Indigenous science, protocols and sustainability science. Sustain Sci 11, 25–32. https://doi.org/10.1007/s11625-015-0296-6
Whyte, K.P., Caldwell, C., Schaefer, M., 2018. Indigenous Lessons about Sustainability Are Not Just for "All Humanity," in: Sze, J. (Ed.), Sustainability. Approaches to Environmental Justice and Social Power. NYU Press, New York, pp. 149–179.
Wildcat, D.R., 2005. Indigenizing the Future: Why We Must Think Spatially in the Twenty-first Century. American Studies 46, 417–440.
Wiles, J.L., Rosenberg, M.W., Kearns, R.A., 2005. Narrative analysis as a strategy for understanding interview talk in geographic research. Area 37, 89–99. https://doi.org/10.1111/j.1475-4762.2005.00608.x
Wilson, S., 2008. Research is ceremony: Indigenous research methods. Fernwood Publishing, Black Point, NS.
Wilson, S., 2001. What is indigenous research methodology? Canadian Journal of Native Education; Edmonton 25, 175–179.
Wittmayer, J., Hölscher, K., Wunder, S., Veenhoff, S., 2018. Transformation research: Exploring methods for an emerging research field. Dutch Research Institute for Transitions (DRIFT), Rotterdam.
Wittmayer, J.M., Backhaus, J., Avelino, F., Pel, B., Strasser, T., Kunze, I., Zuijderwijk, L., 2019. Narratives of change: How social innovation initiatives construct societal transformation. Futures 112, 102433. https://doi.org/10.1016/j.futures.2019.06.005
Woman Stands Shining, P.M., n.d. WOMAN STANDS SHINING (Pat McCabe) on Humanity's Homecoming. For The Wild.
World Commission on Environment and Development, 1987. Our Common Future. Oxford University Press, Oxford, New York.
Woroniecki, S., Wibeck, V., Zeiler, K., Linnér, B.-O., 2022. Dethroning the Planetary Perspective: Dealing with Actually-Occurring Transformations Using Dialogical Sense-Making and Critical Phenomenology. https://doi.org/10.20944/preprints202201.0293.v1

Wright, A.L., Gabel, C., Ballantyne, M., Jack, S.M., Wahoush, O., 2019. Using Two-Eyed Seeing in Research With Indigenous People: An Integrative Review. International Journal of Qualitative Methods 18, 1609406919869695. https://doi.org/10.1177/1609406919869695

Yeung, H.W., 2005. Rethinking relational economic geography. Transactions of the Institute of British Geographers 30, 37–51. https://doi.org/10.1111/j.1475-5661.2005.00150.x

Yunkaporta, T., Shillingsworth, D., 2020. Relationally Responsive Standpoint. Journal of Indigenous Research 8. https://doi.org/10.26077/ky71-qt27

Zabala, A., Sandbrook, C., Mukherjee, N., 2018. When and how to use Q methodology to understand perspectives in conservation research. Conservation Biology 32, 1185–1194. https://doi.org/10.1111/cobi.13123

Zanotti, L., 2020. De-colonizing the political ontology of Kantian ethics: A quantum perspective. Journal of International Political Theory 1755088220946777. https://doi.org/10.1177/1755088220946777

Zanotti, L., Ma, Z., Johnson, J., Johnson, D., Yu, D.J., Burnham, M., Carothers, C., 2020. Sustainability, resilience, adaptation, and transformation: tensions and plural approaches. Ecology and Society 25. https://doi.org/10.5751/ES-11642-250304

Zanotti, L., Palomino-Schalscha, M., 2016. Taking different ways of knowing seriously: cross-cultural work as translations and multiplicity. Sustain Sci 11, 139–152. https://doi.org/10.1007/s11625-015-0312-x

Ziervogel, G., Cowen, A., Ziniades, J., 2016. Moving from Adaptive to Transformative Capacity: Building Foundations for Inclusive, Thriving, and Regenerative Urban Settlements. Sustainability 8, 955. https://doi.org/10.3390/su8090955

APPENDICES

Appendix 1: Interview Guide (2017)

Overarching question for Q study:

- What enables social change in Igiugig?

Introduction to participant:

Thank you for taking the time to sit down with me. As I said earlier, my PhD is focused on communities working towards becoming more self-reliant and taking charge of their own development. I think Igiugig has a lot to teach other communities, not only in Alaska but other places too. I am interested in hearing your perspective on the changes happening in Igiugig and how you are able to do this work as a community.

Interview questions:

- If you were to describe Igiugig to an outsider, how would you do it? (Try to summarize the story or the essence of Igiugig in a few sentences. What would you focus on? E.g., what kind of a community is Igiugig? What are the most important things to mention in your opinion?)
- Why did you choose these elements?

- What are some of the major changes that have happened the past ten years in Igiugig? Social, environmental, cultural, political, economic change?
- How have you experienced these changes? Positively or negatively? Why?

- In your opinion, what are the most important elements in creating positive change in Igiugig? Why?
    - Individuals with good leadership skills
    - Shared values in the community
    - Political power (in relation to private, state and federal entities)
    - Economic opportunities
    - Other?

- Do you feel like you and/or the community at large is able to direct change to make it as beneficial as possible?
- What kinds of changes are beyond the community's control? Can you give an example?
- What are the consequences for the community?

- Do you feel like the community generally agrees on what kind of projects to pursue or reject?
- What kinds of things are there disagreement over? Can you give an example?
- What happens if there is disagreement?

- How do you prepare for or try to prevent certain changes?
- How does the community prepare for or prevent change?
- What changes do you anticipate in the near term and long-term future?
- Do you see these positively or negatively and why?

Appendix 2: Demographic Questionnaire

Demographic questions

This information will be kept confidential

Name	
Gender	
Age	
Ethnic / cultural identification	
Religious identification	
Formal education (highest lever or degree)	
Occupation	

Appendix 3: Statement of Informed Consent

Request for participation in research project

"Flexibility of Narratives: Adaptation through Transformation in Northern Communities"

Dear participant,

This Statement of Informed Consent is intended to inform you of the nature of your participation in my research and the possible implications.

Background and purpose

This research project explores how social and environmental changes are experienced, anticipated and planned for in rural communities in the North. The central question I am interested in is what enables some communities to take charge of their change processes and what that says about both individual and collective agency. I am asking for your participation in the research because as a community member you have important insights on social change in your community. I hope to do this research together with you in a way that makes the process and the end-result valuable to you and to your community.

I am doing this research as part of my PhD in Human Geography at the University of Oslo, Norway. The research is part of a larger project called AdaptationCONNECTS, focusing on the role of transformation in climate change adaptation, led by Professor Karen O'Brien and funded by the Norwegian Research Council and the University of Oslo.

What does participation in the project imply?

I am asking for your participation in two activities. The first activity involves doing an interview with me, answering questions about your experience of community changes and helping me get a sense of recent changes in your community. The interview will be recorded. For the second activity I am asking you to consider and rank how much you agree or disagree with different statements about community change.

What will happen to the information about you?

All personal data will be treated confidentially and kept on a protected server at the University of Oslo. Your interview and rankings will be used in my dissertation. During the process of writing the dissertation, I will be the only ones with access to the data. I will publish articles in academic journals based on the information you provide. This information might include reference to identifiable data, such as gender, age and official position. Before publishing, I will take steps to share the information with you and ensure that you have an opportunity to either approve the information or point out where you see the need for changes. After my defense, the dissertation will become publicly accessible through the library at the University of Oslo.

The project is scheduled for completion by December 20, 2021. When the project is done, both audio and written data will be kept on a protected server at the University of Oslo.

Voluntary participation

It is voluntary to participate in the project, and you can at any time choose to withdraw your consent without stating any reason. If you decide to withdraw, all your personal data will be made anonymous.

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

If you have any questions regarding the research or this statement, you are welcome to ask me now or contact me later at irmelin.gram-hanssen@sosgeo.uio.no or +47 983 544 28.

The study has been notified to the Data Protection Official for Research, NSD - Norwegian Centre for Research Data.

Consent for participation in the study

I have received information about the project and agree to the following:

☐ Participating in an interview

☐ Participating in ranking statements

☐ Publication of identifiable data (such as age and gender and in some cases official position)

(Signature of participant & date)

Thank you!

Irmelin Gram-Hanssen
PhD Student in Human Geography
University of Oslo, Norway

Appendix 4: Q-Sorting Instructions and Post-Sort Interview Guide

Instructions:

Based on conversations with Igiugig residents this summer, I have put together this deck of 38 statements that represent different perspectives on how change happens in this community.

What I'd like you to do is to help me look through them and sort them in terms of whether you agree or disagree. The statements focus on different themes and it is your understanding of them that matters.

First, I'd like you to look through the cards one after the other and put them in three piles depending on whether you generally agree, generally disagree or are uncertain.

[First sort]

Now I'd like you to fit the different statements into this grid, where the right side is for statements that you agree with and the left side is for statements you generally disagree with. The middle is for statements you are uncertain about or where you don't have an opinion. The numbers on the top don't really matter much – all they mean is that you agree more with a statement you put in +4 than one you put in +3.

I'd like you to move the disagree and uncertain piles to the side and focus on the pile with statements that you generally agree with. Look through them one after the other and decide which two statements you agree with the most. Place them in the +4 column. Then look through the pile again and find three statements that you agree quite strongly with, but a little bit less than the previous two statements. Continue down the grid until you don't have any more cards in this pile.

Then pick up the pile of cards that you generally disagree with and do the same, but this time find the two statements that you mostly disagree with and put them in the -4 column. Continue down the grid until you don't have any more cards in this pile.

Then pick up the last pile, with the statements you were a little uncertain about. Find the ones you are most positive towards and the ones you are most negative towards and move from the sides towards the middle column, 0.

[Second sort]

Look over the sort and see if you want to change any of the placements.

Interview questions:

- How was it?
- Could you walk me through the statements on the far right (+4 and +3)?
    - How do you understand these statements?
    - What made you place these statements there?
- Could you walk me through the statements on the far left (-4 and -3)?
    - How do you understand these statements?
    - What made you place these statements there?
- Could you walk me through the statements in the middle (0)?
    - How do you understand these statements?
    - What made you place these statements there?

- Did you have more + than - ?
- Were there some statements that were difficult to place?
    - What made it difficult?
- Were there some statements that were easy to place?
    - What made it easy?
- Did you feel like some important perspectives were not included in this group of statements?
    - If you had a blank card, what would you write on it?
    - Where would you place it on the grid?
- Did you feel that some of the statements were unnecessary or out of place?
    - Which statements?
    - Why?
- Are there any statements you would like to move around, now that we have talked about them?
- Did this process make you think about community changes in a different way than you have before?
- Any other comments or questions?

Appendix 5: Interview Guide (2021)

Overarching question:

What is community members' sense of Igiugig's ability to enact large-scale change? What are examples of this ability/inability?

Introduction to participant:

Thank you for taking the time to sit down with me over Zoom. I would like to ask you to reflect on the impact that Igiugig has beyond the community borders. From our previous conversations, I get the sense that what happens in Igiugig does not necessarily stay in Igiugig and I was wondering if you could share how you understand the relationship between what goes on in Igiugig and what goes on in the region, the state and beyond in terms of community sustainability, self-determination and self-reliance. I've been thinking about the No-se-um tagline "small but mighty" and wanted to use that as an entry-point into this conversation.

Interview questions:

- What does the tagline: "small but mighty" mean to you?
- Does this idea influence the work that Igiugig does? How?
- Does it influence you personally? How?
- Do you think that the idea of "small but mighty" is unique to Igiugig or is it connected to a Yup'ik or Alaska Native way of life? Why, why not?
- Do you think that what happens in Igiugig influences other places and people?
- If yes: How? Do you have any examples of this?
- If no: Why not? Do you have any experiences with the opposite?
- Do you think that something happening here in Igiugig could influence a place on the other side of the Earth? What, for instance?
- What creates limits for the changes Igiugig can make? Do you have examples where Igiugig has met such limits?
- Do you think Igiugig could have more influence in the region and even internationally if you were more people here? Why/why not?

II

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The role of flexibility in enabling transformational social change: Perspectives from an Indigenous community using Q-methodology

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ABSTRACT

What makes some communities more resilient and transformative than others? This paper explores the hypothesis that the flexibility of perspectives is central to enable the kind of changes called for by current and future environmental and socio-economic challenges. The paper reports on findings from a Q-study conducted with the Indigenous community of Igiugig, Alaska, focusing on perceptions of social change. The study reveals three main narratives concerning drivers of social change, focusing on the role of individuals, the importance of cultural values, and community visioning. The findings from the Q study point to the importance of flexibility, understood as the capacity to take different perspectives, in enabling deliberate action in situations where the correct path to take is often contested. This kind of flexibility, grounded in an Indigenous worldview, is seen to contribute to community resilience through supporting cultural cohesion, collective leadership and enacting alternatives in the here and now. Strong community narratives that allow for individual interpretation is seen as important and highlights the interrelatedness between the individual and the collective and the role of collective agency. Drawing on the critiques of the concept of resilience in an Indigenous context, the paper further points to the need for transformational change occurring at multiple scales and extends a call for flexibility to be fostered among researchers and practitioners alike. The lessons from this community have implications for understandings of community resilience and agency in social-ecological systems and the potential for transformations towards sustainability.

1. Introduction

What is holding us back from imagining and enacting different societies characterized by social justice, well-being and healthy ecosystems? Path dependence, rigid institutions, vested interests and lack of agency are often highlighted as central barriers to change (Smith and Stirling, 2010; Marshall, 2013). While these observations are important, they miss the nuances of change processes happening at smaller scales. Change is already happening; change that challenges dominant social and economic systems and human-environment relationships in various ways. Some changes are large-scale and visible, while others remain under the radar and in the making. Although social change is often assessed based on global or national trends, such as economic growth and consumption patterns (Katz-Gerro et al., 2017), communities, understood both as networks of people and as geographical places where people live, have increasingly been recognized as fruitful units of analysis (Maton, 2008; Warburton, 2013; El Khoury, 2015; Ingram et al., 2015). Focusing on the community allows for a bottom-up approach that can capture the complexities of social change, recognizing that "people's actions across various scales help make the world in various ways and also co-produce space" by "enacting alternatives in the here and now" (El Khoury, 2015, p. xviii, 13).

What makes some communities more resilient and transformative than others? One hypothesis is that the flexibility of perspectives is central to enable the kind of changes called for by current and future environmental and socio-economic challenges. Flexibility, not understood as bending uncritically to various pressures, but rather as a conscious engagement with different perspectives and approaches to change. In this paper, I explore the role of flexibility of perspectives, as can be seen through narratives, in creating transformational social change. I do so through a Q study on local views of what drives social change in the Indigenous community of Igiugig, Alaska. I use Q-methodology to capture subjective viewpoints of community members, having each participant imprint their unique perspective onto the data material in a holistic manner, reviewing different aspects of community change and making sense of sometimes contradicting perspectives.

Focusing on people and communities in the analysis of social change enables insights into the worlds that exist outside of the 'public transcript' (Scott, 1990; El Khoury, 2015). Igiugig is a community of approximately 70 year-round residents, most of whom identify as Yup'ik Alaska Natives. On many levels, Igiugig is enacting transformational social change. Transformational in the sense that the very nature of community systems, how they look and function, differs from what is otherwise common for communities in the region and across the state. In a context characterized by social and economic disparity and political marginalization, Igiugig is decreasing their dependence on fossil fuels, diversifying their economy, keeping their youth living in the community and increasing their engagement with Yup'ik worldviews,

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cultural practices and language. While all efforts are local and community-based, they have ripple effects at the regional level and beyond.

Igiugig is a good example of a community engaged in deliberate transformation towards enhanced resilience. In this context, I define *deliberate transformation* as consciously working towards reducing community vulnerability to environmental and socioeconomic stressors; taking charge of community development through local initiatives guided by sustainability goals; and enacting alternatives in the here and now (as oppose to solely resisting or reacting to outside pressures). By *resilience*, I mean having the ability to remain a thriving community despite unpredictable socio-economic and environmental pressures, including maintaining certain community aspects while altering others.

I start out by exploring the concept of community resilience as it has been applied in an Alaskan context, pointing to the benefits of a narrative approach to understanding deliberate transformations. I then introduce Q-methodology and provide an analysis of community narratives of social change in an Indigenous context. This is followed by a discussion, in which I highlight the role of flexibility in deliberately transforming community systems and point to the ways in which this quality contributes to community resilience. In discussing the role of flexibility, I also investigate the 'dark side' of this mode of being, in terms of getting overpowered by other less flexible systems, people and ideas. As with the concepts of resilience, transformation and adaptation, calling for more flexibility is especially problematic in an Indigenous context, since this can be interpreted as 'victim blaming' (Shah et al., 2017) or a call for assimilation (Cameron, 2012). Taking this into account, I argue for a mode of being that is flexible while paying careful attention to when it is necessary to exchange flexibility for firm determination. This mode of being enacts social change that is both informed by what is and has been, while also envisioning radically different futures. I end up by shining a critical light on the very idea of community resilience, arguing for a broader and deeper analysis of social change at multiple scales.

2. Role of narratives in community resilience

In rural Alaska, questions of social and environmental change are overwhelmingly placed within the frame of social-ecological systems and community resilience (Berkes and Jolly, 2001; Robards and Alessa, 2004; Chapin et al., 2016). Community resilience is an especially important area of work in the Arctic, where economic and social stressors of globalization are increasingly coupled with dramatic environmental changes driven by climate change (Chapin et al., 2004; Hovelsrud and Smit, 2010). In an Indigenous context, these challenges take on extra dimensions through past and present colonial relationships as well as the high reliance on and deep relationship to the natural environment (Ford et al., 2010; Cameron, 2012). Taken together, Arctic Indigenous communities have much at stake in the face of unpredictable, large-scale changes to the social-ecological systems of which they are a part.

While resilience has been used as a concept in ecology and psychology for several decades, its application for communities is more recent (Berkes and Ross, 2013; Brown, 2014). As a feature of ecosystems, resilience is understood as the capacity of a system to bounce back and retain essentially the same function and structure in the face of a disturbance (Walker et al., 2004). In psychology, resilience most often refers to positive adaptation and an individual's ability to overcome adversity (Fletcher and Sarkar, 2013). Berkes and Ross (2013) draw on both social-ecological resilience and individual resilience in their suggested framework of community resilience. They argue that community resilience is a function of the strengths of a handful of characteristics, including values and beliefs, social networks, infrastructure and economic diversity, which come together through agency and self-organization.

In broadening the frame for community resilience, Berkes and Ross (2013) partially respond to the criticism directed at the resilience concept from social science disciplines as part of 'the social turn in resilience' (Brown, 2014). In moving from ecological to social analysis, the concept of resilience has been critiqued for a lack of attention to power relations (Cote and Nightingale, 2012); uncritically assuming that ecological and social systems have similar qualities (Davidson, 2010); favoring incremental change over deeper structural change (MacKinnon and Derickson, 2013); and overlooking important interior human dimensions (Shah et al., 2017). Other concepts have been suggested as replacements for or additions to resilience in a community context, such as 'resourcefulness' (MacKinnon and Derickson, 2013) 'community work' (Loring et al., 2016) or 'worlding' (Shah et al., 2017).

Despite terminology, moving communities towards increased well-being and sustainability is likely to include maintaining certain aspects while fundamentally changing others. More recent developments within resilience thinking recognize this and emphasize the role of both adaptation and transformation in a resilient system (Folke et al., 2010). Folke et al. (2010) specify that while overall resilience requires transformational change at smaller scales, the very capacity to transform depends on resilience at multiple scales. Deliberate transformation, they argue, requires resilience thinking and "involves breaking down the resilience of the old and building the resilience of the new." Thus, a resilient system is increasingly understood as one characterized by dynamism and flexibility.

In a community context, these qualities are not only attributed to the community at large, but extends to community members. How do community members respond to the need for "rapid and flexible response at all levels"? (Berkes and Ross, 2013, p. 6) What characterizes a flexible response in a community context? One possible answer is that the flexibility of responses is likely to depend on the flexibility of perspectives, which can be seen through narratives. Narratives are crucial for meaning making and help structure human comprehension by ordering otherwise diverse experiences into a coherent storyline (Paschen and Ison, 2014), shaping identities and relationships in the process (Ingram et al., 2015). Narratives often justify activities and support decisions, sometimes drawing legitimacy from larger societal discourses or intentionally challenging conventional wisdom. At the same time, they provide a window into shared values and ideas about progress and development, including what can be considered legitimate approaches to possible and desirable futures (Veland et al., 2018). In contexts where responses need to be flexible, the narratives surrounding what the problems are and what solutions might be viable are likely to need some degree of flexibility as well.

Exploring narratives of change also potentially make visible existing power relations, both between community members and between the community and outside actors. The lack of attention to the political nature of transformation within social-ecological systems has been extensively criticized (Moore et al., 2014). This is especially so in an Indigenous context, where processes of change cannot be understood outside the context of colonization and decolonizing efforts. For instance, as Parsons and Nalau (2016) point out, Indigenous peoples have experienced their share of transformational changes, and far from all have left them more thriving and resilient. The global environmental change literature has been accused of overlooking and in some cases perpetuating colonial systems and structures (Cameron, 2012). This has led to a call for more political and empowering research agendas that acknowledge the colonial past and present of the Indigenous reality and link this critically with current and future vulnerability to climate change and other global stressors (Cameron, 2012; Golden et al., 2015; Parsons and Nalau, 2016). Similarly, Kirmayer et al. (2011) point out that the classical understanding of resiliency as belonging to individuals is somewhat misleading in an Indigenous context where individuality is seen as inherently tied to collective identity, history, language and the land. Thus, inquiries into what supports community resilience and transformations towards sustainability in an Indigenous context ought to apply a collective lens and pay attention to the relationship between individual and collective agency for change. In this perspective, narrative research can serve as a window into historical identity and future

visioning.

The issues outlined in the previous paragraphs indicate certain gaps in our understanding of community resilience in an Arctic Indigenous context, especially pertaining to the role of narratives in support of transformational change. There is a need for identifying what underlying qualities and conditions enable some communities to engage deliberately with transformational social change; qualities and conditions that are potentially applicable to other geographical and cultural contexts as well. The coevolved nature of Indigenous peoples and ecosystems can provide inspiration for how to potentially manage social-ecological systems towards resilience and sustainability on a global scale (Apgar et al., 2015).

Before diving into the research itself, the next paragraphs outline some of the ways in which the community of Igiugig stands out, making them an interesting case for exploring community resilience and deliberate transformations.

3. Research context: The curious case of Igiugig, Alaska

The story of rural Alaska most commonly reflected in both popular and academic discourse is not one of resilience and sustainability but rather of economic disparity, social and health problems, loss of culture and identity and dangerous climate change (Wexler, 2006; Sarche and Spicer, 2008; Hutchinson and Shin, 2014; Melvin et al., 2017). This grim picture is attributed to Alaska's colonial legacy, persistent marginalizing state policies, dependency and lack of local initiative as well as the geographical and political isolation of these communities, among others (Huskey, 2005; Wexler, 2009; Knaus and Hund, 2015). This story is a partial representation of reality in rural Alaska. While most communities across the state deal with these issues to some extent, in several communities other stories are equally or more present. This is the case in Igiugig, where the community story reflects less of the hopeless narrative described above and instead many aspects of a resilient and thriving community.

Igiugig is small and geographically isolated, located in southwest Alaska where Lake Iliamna feeds into the Kvichak River. Leaving the village means taking a one-hour flight to Anchorage on a bush plane, although nearby villages can be reached using four-wheelers, boats and snow-mobiles. As with all other communities in the region, Igiugig relies extensively on what the land provides in terms of food and other natural resources. Igiugig is located in some of the richest salmon-spawning grounds in the world and subsistence, commercial and sport fishing all constitute important sources of livelihoods and culture. While Igiugig can be considered a Yup'ik community, many community members identify with several cultures and ethnicities, including Caucasian and other Alaska Native cultures. Due to its geographical isolation, Igiugig has much of the physical infrastructure otherwise characteristic of a larger town, such as a bulk fuel farm, an airstrip, a dump, and a health clinic. Igiugig also has a school grades K-12, which in the 2017–2018 school year had 20 students and employed three teachers.

For the past two decades, Igiugig has worked to enhance their resilience through creating local economic opportunities, fostering self-reliance, engaging in cultural revitalization and enabling the next generation of youth to establish themselves in the community. Local economic opportunities include establishing a local construction business under the Disadvantaged Business Enterprise (DBE) scheme in 1998, followed by an environmental restoration business in 2007, both aimed at providing training and jobs for community members while furthering community and region specific development needs. Enhancing self-reliance include the establishment of a wind-powered community greenhouse in 2009, providing fresh produce to residents and several of the sport fishing lodges in the area, as well as collaborating with business and university partners on alternative energy sources such as solar and hydropower to reduce dependence on fossil fuels. Cultural revitalization includes culture camps and a Yup'ik language program, enabling adults and children to learn the regional dialect in order to better communicate with community Elders and pass on cultural knowledge. Finally, youth retention is exemplified through the strong involvement of youth and young adults in community work, starting with job shadowing, internships and student jobs, offering college scholarships and training opportunities, and creating local jobs for returning youth, making it possible and attractive for young people to stay in or return to the village. The result of this latter effort is evident in that the majority of leadership positions in the community are held by residents younger than 35. For a more detailed description of community history and activities, see Gram-Hanssen (2012). For an in-depth analysis of the community's educational efforts and its relation to community resilience, see Gram-Hanssen (2017).

Despite its geographical isolation, Igiugig is tightly connected to actors and processes from the local to the global levels. Some 50 miles northeast of the community, the mining company Pebble Partnership hopes to establish an open-pit gold and copper mine, estimated to be in production for a minimum of 20 years and employing some 2000 individuals ("Pebble Partnership: Why Mine?" n/d). The project has divided the region, with proponents hoping for jobs and opponents fearing negative environmental and cultural impacts. Since the site is on state land, none of the nine communities situated within the watershed of the site has any direct influence on the decision-making process. Thus, while this paper focuses on the deliberate transformations happening at the local level, it is crucial to take a broader perspective for a comprehensive understanding of the limitations to such processes. This will be explored further in the discussion section of the paper.

4. Methods

In order to understand how the positive changes – and indeed transformations – described in the section above have emerged and are emerging, I sought to draw on the perspectives of Igiugig residents themselves. Asking them to make sense of their own change processes not only prompts a potential reflection process, it also honors these individuals as experts on rural community development (Smith, 2013). In an Indigenous context, resilience and sustainability must also imply moving away from colonial systems of thought and practice. This is no less the case in a research context, especially as a non-Indigenous researcher working with an Indigenous community (Brown and Strenga, 2005). My wish for the research process to be empowering and supportive of ongoing social change processes, in line with action research (Chevalier and Buckles, 2013) and community-based research (Grimwood et al., 2012), drew me to using Q-methodology.

4.1. Q-method

Q-methodology (also referred to as 'Q') is a mixed method that takes the subjective opinions of research participants as its starting point. Rather than getting bits of information about participants and comparing them across the group, Q focuses on the whole viewpoints of individuals and aims to identify different types of people in a holistic manner (Watts and Stenner, 2005) based on "whole aspects of their personality" (Stephenson, 1936, p. 278). Through by-person factor analysis, a sample of statements is exposed to measurement by a selected group of individuals who rank the statements in relation to one another based on a specific research question (Watts and Stenner, 2012), in this case focusing on drivers of social change. Rather than being passively measured, the individuals thereby take an active role and project their subjective understanding of the topic onto the statements, which in and of themselves have no 'inherent' meaning. While Q was originally developed and used within the field of psychology, a large amount of work has been published in recent years using Q to investigate environmental issues, especially issues of conservation. For recent literature reviews, see Vaas et al. (2018) and Zabala et al.

(2018). Q has also recently been used to explore the subjective opinions concerning the engagement with and management of social-ecological systems in an Indigenous context (e.g. Bischoff-Mattson et al., 2018; Loring and Hinzman, 2018). However, the focus on social change within this context is somewhat novel.

Participants rank the statements using a set grid representing a standard distribution. For this study, a grid of 38 statements was used, ranging from −4 (mostly disagree) to +4 (mostly agree) (see Fig. 1 below). By ranking the statements relative to one another, the statements are made homogeneous relative to the individual doing the ranking, such that the configuration of statements as a whole represents the opinion of that individual (Watts and Stenner, 2005). When the sample of statements covers the range of different possible opinions, the subsequent ranking presents a complex, but easily comparable picture of an individual's subjective opinion on a given topic. Through specialized software, rankings from different people are compared using correlation statistics and grouped based on similarities and differences relative to the ranking of statements as a whole. In the subsequent factor analysis, rankings are grouped together and reduced to a couple of central viewpoints that represent latent factors underlying the complex and qualitatively rich data material. This allows for reductionist and comparable results without eliminating the qualitative richness that gives nuance and meaning to the given opinion type. In the context of Q-methodology, a factor is a weighted average sort based on a group of participants who sorted their statements similarly. Each factor represents an archetypical or ideal viewpoint drawing from the similarities of these participants. Although no participant match the factor perfectly, most participants load higher on one factor than the rest (ranging from −1 to +1) (Zabala and Pascual, 2016). The set of factors that emerge from the factor analysis thereby provide a plausible theoretical explanation for the appearance of statistical association between individual rankings (Watts and Stenner, 2012).

4.2. Data collection

During summer 2017, I conducted qualitative interviews with 15 Igiugig community members, 11 women and four men ages 20–70. This accounts for the majority of adults present in the community at the time, which due to fishing season was somewhat reduced. Additionally, some of the Elders were not interviewed due to health issues, while a few individuals declined to participate. The interviewees ranged in age, educational level, occupation as well as ethnicity, thus giving a broad insight into the different perspectives present in the community. The process of recruiting interviewees was based on previous contacts and word of mouth, and all community members older than 18 were invited to participate.[1] All interviews were conducted in English and usually took place in people's homes. Some interviewees were interviewed together. Interviews were based on a broad inquiry into the drivers of social change and perceptions of historical and future possible changes. Interviewees were asked to describe their community and reflect over past and current social change as well as give projections for future changes. They were also asked to identify the main drivers of such changes and reflect on their own ability to create change. Following transcription, I built a database of the various perspectives expressed in the interviews – in Q called a *concourse*. The concourse mainly consisted of quotes from the interviews, although I also reviewed the village website for relevant statements, as well as the website of Pebble Partnership, a mining company that hopes to establish an open-pit gold and copper mine in the region. This particular industrial development was included as a theme since it is highly debated in the region and could have big implications for the future resiliency of Igiugig.

Through several rounds of revision, the concourse was reduced from an initial 228 statements to a final set of 38 statements – in Q referred to as the *Q-set* – divided into four overarching themes: community culture, outside influence, agency and leadership and vision. The themes were informed by the statements themselves and the literature on community resilience and social change. See Table 1 below for the list of statements.

I cut the Q-set into cards about half the size of a normal deck of playing cards and brought it to Igiugig for another visit during fall 2017. The statements were written in English and the ranking process was most often completed in the home of the participants. The ranking process, which had no time restriction, took an average of 45 min. Twenty-eight community members completed the ranking process, 20 women and eight men ages 17–70. This accounts for the vast majority of adults who were living in the community at the time. I aimed at getting as many participants as possible in order to gain a rich and nuanced picture of the perspectives present in the community. As with the initial interviews, participants ranged in age, educational level, occupation as well as ethnicity (as visible in Table 3 below). The process of recruiting interviewees was based on previous contacts and word of mouth. The ranking process occurred in silence unless the participants had questions about the meaning of a statement, in which case I gave simple clarifications or asked the participants to interpret the statement themselves. After each ranking, in which participants produced a *Q-sort* (a complete configuration of statements into the grid), I asked the participants to speak to their ranking, enabling them to explain their unique interpretation of the statements and their relationship to one another. These interviews were recorded and later transcribed and used in the analysis process.

4.3. Analysis

I ran a centroid factor analysis, using the specialized software program PQMethod (http://schmolck.userweb.mwn.de/qmethod/). I conducted an exploratory factor analysis and proceeded with an inductive strategy for extracting and analyzing the factors (Watts and Stenner, 2012). Thus, rather than testing a hypothesis, I largely let the data indicate the number of factors and drive the analysis process, guided by the research question. The data supported the identification of three factors. Following the software calculation of how much variance could be explained by each factor, I identified the Q-sorts where half or more of the variance could be explained by a single factor. These sorts thus informed the viewpoint of that particular factor. The three factor solution was further supported through a calculation of eigenvalues and how much of the data as a whole could be explained by the different factors. For each factor, the software produced an ideal Q-sort with statements configured according to that particular viewpoint. Table 2 below shows how each participant loaded on the three factors, with an X indicating a defining sort (half or more of the variance explained). I analyzed the factors according to the question of what drives social change in the community, triangulating the data from the software analysis with the follow-up interviews and my own knowledge of the community context. I relied heavily on the follow-up interviews to make sense of each statement in the context of all three factors in order to capture the unique perspectives of each participant. Based on this analysis process, I wrote coherent narratives for the factors, summarized in the results section below.

5. Results

Based on the 28 different configurations of the 38 statements, three main factors emerged. As described above, each factor represents an ideal sort informed by the individual Q-sorts where half or more of the variance is explained by the given factor. The three factors are summarized by the short titles: F1 "Walking the talk", F2 "Strength in culture" and F3 "Visioning the future". All factors represent different perspectives on the question of what drives positive social change in

[1] In this research, I built on an existing relationship with the community from previous research projects, see Gram-Hanssen (2012, 2017).

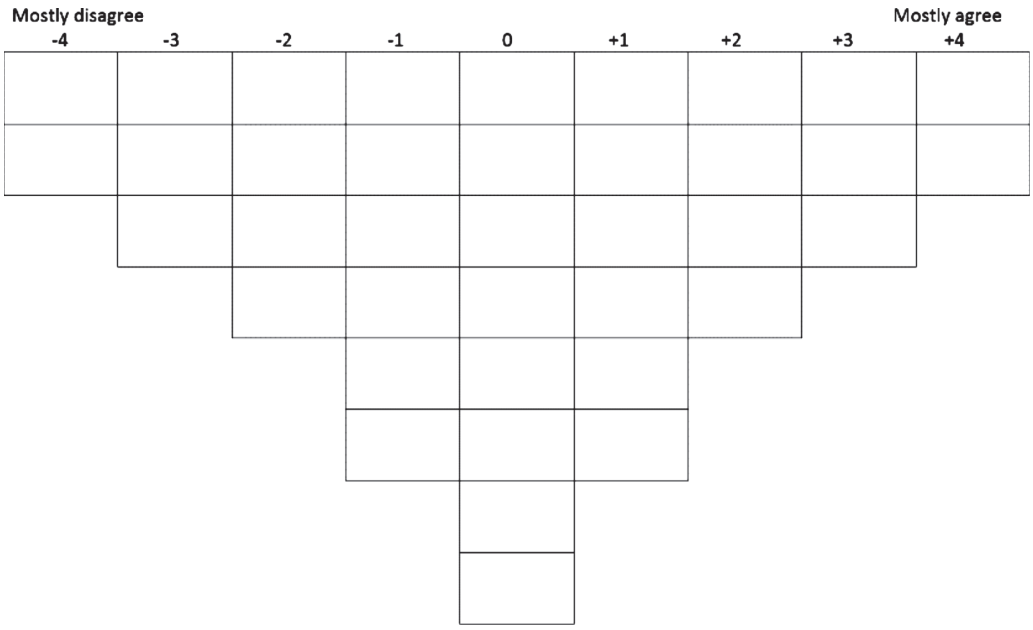

Fig. 1. Ranking grid for 38 statements.

Table 1
Factor and ranking scores for Q-sort statements.

#	Statement	F1		F2		F3	
		Z	Rank	Z	Rank	Z	Rank
S01	State politics are preventing Igiugig from moving forward	−0.6	−1	−0.53	−1	−0.72	−2
S02	It is best for the community if everything can be done by locals	−0.55	−1	0.53	1	1.17	2
S03	Cultural diversity makes the community stronger	1.44	3	1.07	2	0.7	1
S04	Passionate individuals drive community change	1.5	3	1.37	3	1.27	3
S05	We need outside experts to help us develop	0.06	0	−1.05	−2	−0.64	−1
S06	Igiugig has no influence when it comes to Pebble	−1.84	−4	−0.68	−2	−0.22	0
S07	It is important for the new generation to both keep up with modern technology and Yup'ik culture	0.58	1	0.49	1	1.53	4
S08	The Pebble Mine will make our community prosper	−1.46	−3	−2.13	−4	−1.83	−4
S09	In Igiugig, everyone is a leader	0.27	0	−0.13	0	0.09	0
S10	By controlling our village lands, we can influence what happens in the region	0.37	1	0.32	1	0.6	1
S11	If our water gets poisoned by the Pebble Mine, our village will slowly die	−0.04	0	1.1	2	0.13	0
S12	We have to be able to see our vision for the future in order to get there	0.85	2	0.33	1	1.88	4
S13	If you lose your cultural heritage, you lose your identity	1.24	2	1.62	4	−0.34	−1
S14	If all community members learn to speak Yup'ik, the community will grow stronger	0.15	0	1.21	3	−0.24	0
S15	We are creating our own opportunities	0.79	1	1.14	2	0.44	1
S16	Everyone who comes to this community from the outside should go through “cultural awareness training”	−0.83	−1	−0.91	−2	0.23	0
S17	We should have nothing to do with the Pebble Mine	−1.06	−2	1.31	3	−0.4	−1
S18	We are very good at adapting to change	0.66	1	0.01	0	0.72	1
S19	We think more positively than other communities	0.9	2	0.38	1	0.28	1
S20	We have to be cautious about what kind of change we allow into the community	−0.13	0	0.61	1	0.69	1
S21	The future is bright for Igiugig	1.7	4	0.3	0	0.94	2
S22	The knowledge of our Elders will become less relevant for us in the future	−1.13	−2	−1.78	−3	−1.42	−3
S23	Igiugig should stay out of regional politics	−1.36	−2	−1.42	−3	−1.26	−2
S24	It is important that community members share basic values	1.2	2	1.05	2	0.7	1
S25	Sport fishing brings more bad than good to our community	−0.77	−1	−0.37	−1	−1.36	−3
S26	The only way to change the system is to lead by example	1.66	4	0.21	0	1.34	3
S27	Lack of money is the biggest community problem	−1.2	−3	−1.63	−3	−1.66	−3
S28	The state plays an important role in creating positive change in the community	−0.1	0	−0.67	−1	−0.46	−1
S29	The church sets a good example for how to live	−0.45	−1	−0.16	0	−0.25	0
S30	Climate change is of no concern to us	−1.62	−4	−1.8	−4	−1.84	−4
S31	Community change will always happen slowly	−0.52	−1	−0.22	−1	−0.71	−1
S32	Western ideas of leadership have a negative impact on our community culture	−0.84	−2	−0.69	−2	−0.66	−1
S33	Powerful people outside the community are important drivers of local change	−0.12	0	−0.38	−1	−1.08	−2
S34	Technology makes us too westernized	−1.14	−2	0.18	0	−0.92	−2
S35	Positive change is driven by young people who take on responsibility	1.48	3	0.15	0	0.97	2
S36	Our number one priority is securing the land-base for future generations	0.55	1	1.77	4	0.77	2
S37	It is important to have a seat at the table in order to influence the Pebble Mine	0.09	0	−0.02	0	0.25	0
S38	Positive change can only happen when everyone agrees on what to do	0.28	1	−0.6	−1	1.3	3

Table 2
Rotated factor loadings.[a]

	#	Q-sort	F1	F2	F3
Loading significantly on one factor	1	Q06	0.6768X	0.2464	0.4035
	2	Q12	0.6188X	0.3162	0.3121
	3	Q18	0.6163X	0.1872	0.4285
	4	Q22	0.5978X	0.2877	0.1219
	5	Q05	0.5892X	0.1946	0.4135
	6	Q03	0.5165X	0.2821	0.4739
	7	Q24	0.2373	0.8541X	0.1273
	8	Q21	0.3421	0.7042X	0.2605
	9	Q20	0.1198	0.6821X	0.2461
	10	Q19	0.3527	0.5421X	0.3094
	11	Q09	0.4378	0.5209X	0.2312
	12	Q13	0.4652	0.4972X	0.3371
	13	Q17	0.2455	0.142	0.7979X
	14	Q02	0.4309	0.3897	0.6586X
	15	Q28	0.1772	0.424	0.6507X
	16	Q11	0.3114	0.2455	0.6152X
	17	Q23	0.4647	0.435	0.5679X
	18	Q08	0.2569	0.2305	0.5400X
	19	Q10	0.4026	−0.0333	0.5029X
Confounding	20	Q01	0.5656	0.5899	0.2365
	21	Q14	0.4955	0.5064	0.4763
	22	Q15	0.2822	0.5898	0.5039
	23	Q16	0.1067	0.5885	0.5021
	24	Q27	0.2204	0.5032	0.5898
Non-significant	25	Q04	0.4102	0.3983	0.2244
	26	Q07	0.4436	0.4571	0.0162
	27	Q25	0.1341	0.3435	0.4317
	28	Q26	0.4505	0.1515	0.4038

[a] Values grouped by defining sorts (X) then sorted in decreasing order.

Table 3
Statistical and demographic information for the three factors.

	F1	F2	F3
Eigenvalue	5.05	5.61	5.53
Study variance	18%	20%	19.8%
Community members with significant loading (≥0.5)	6	6	7
Gender			
Women	5	5	4
Men	1	1	3
Age			
Average age	43	36.7	38.6
Ethnicity			
Alaska Native	1	4	3
Alaska Native and Caucasian	2	1	3
Caucasian	3	1	1
Upbringing			
Community	2	4	4
Region	1	1	2
Outside Alaska	3	1	1
Formal education			
Some college experience	6	3	5
Bachelor's degree	2	2	2

Igiugig. Together the factors explain 57.8% of the study variance. A total of 19 community members were significantly associated with one of the three factors (68% of the study participants), while five community members were found to have confounding association (significantly associated with more than one factor) and four had no significant association to any factor. See Table 2 for the rotated factor loadings and Table 3 for an overview of statistical and demographic information for the three factors.

There was high correlation between all three factors: 0.6534 between F1 and F2, 0.7495 between F1 and F3, and 0.6334 between F2 and F3. This high correlation suggests that the actual difference in opinions expressed through these three factors can be seen as nuances on the same general opinion. While in a Q study, one normally hopes for factors with low correlation to be able to identify differences, the high degree of correlation between these three factors is highly relevant when talking about resilience, since it indicates high community cohesion. Additionally, the nuances expressed within the factors still present important variety and subtlety existing within a large-scale community narrative, which might be important when it comes to the flexibility of perspectives on community change. This will be discussed later in the paper.

Below is a summary of the perspectives represented by the three factors, presented as three narratives. To ensure transparency of the analysis process, information about statement number and ranking, ([Statement], [Ranking]), has been added every time a statement has formed the basis for a particular interpretation. All rankings can be seen in Table 1 above, with "Z" indicating the weighted average of the values that the Q-sorts that loaded most heavily on the factor give to a statement, and "Rank" indicating how each statement was sorted for the three factors. Besides the rankings themselves, the follow-up interviews have informed the final interpretation of the three narratives.

5.1. Factor 1: Walking the talk – individual agency and community influence

Within this narrative, individuals 'walking the talk' is seen as the main way of creating positive social change in the community. Rather than telling other people what to do, this narrative focuses on leading by example and 'being the change you want to see' (26, +4). This also extends to the youth. Young people who take on responsibilities and leadership positions are seen as key drivers to creating positive social change (35, +3).

The narrative emphasizes the ability of the community to take charge of their own development and influence what happens in the region, both through political processes and by inspiring other communities (10, +1 and 23, −3). The community's success and high degree of influence is attributed to the 'can-do' attitude of community members (4, +3 and 19, +2), again emphasizing the importance of dedicated individuals.

The narrative also emphasizes the importance of outside expertise (5, 0; 28, 0; 33, 0 and 2, −1) in solving problems and creating opportunities (15, +1). A wide range of cultural backgrounds and skillsets is seen as an important asset for community development (3, +3) and there is not much concern with opening up to outside influence (20, 0), neither in the form of ideas (32, −2) or technologies (34, −2). While protecting the land is considered important, access to and control over communal lands is not perceived to be threatened by outside development (36, +1).

Despite the openness to change and outside influence, this narrative also emphasizes that community members should share some kind of basic values (24, +2), and that these values can form the foundation for a community vision guiding community development efforts (12, +2). There needs to be room for individual community members to express their values and particular cultures in their unique ways, however, and becoming too fixated on certain cultural values is not seen as conducive to positive community change (14, 0).

On the issue of Pebble Mine, this narrative suggests that the community is capable of influencing the process by keeping a close eye on the company and engaging in regional politics (17, −2), even if they have little say in whether the mine gets established (6, −4). However, ultimately there is no wish to work with or for the mine to any extent (37, 0) and this narrative does not see the mine bringing any real benefit to the community in the long term (8, −3).

Despite the negative feelings towards the mine, this narrative presents a strong belief in the resilience and adaptability of the community (18, +1) and a belief that the future is bright for the village (21, +4), even with potential environmental damages caused by the mine (11, 0).

The confidence in the future is largely informed by the high number of motivated and passionate individuals, who are seen to form the backbone of positive community change, and the way in which the community enables youth to contribute to this process; empowering them by offering opportunities and including them in the community's sustainability efforts.

5.2. Factor 2: Strength in culture – taking a stand and protecting what matters

Within this narrative, knowledge of cultural heritage and engagement with cultural activities, such as language learning and Native dancing, is of immense importance for positive social change in the community. Knowledge of cultural heritage is seen as intimately linked to self-knowledge and personal health (13, +4), which in turn is seen as a prerequisite for contributing to a healthy community. Increased engagement with cultural activities and knowledge of cultural heritage is therefore seen as a necessary step towards community sustainability, and the more community members who engage in such activities the better (14, +3).

Community Elders are seen as an important and direct source of knowledge about cultural heritage in the form of knowledge and skills as well as values, all of which are seen as important now and in the future (22, −3). While Alaska Native cultures and 'Western' cultures are not necessarily seen to be at odds, and cultural diversity is seen as a strength to the community (3, +2), knowledge of Alaska Native cultures and values is prioritized over knowledge associated with mainstream society (7, +1). The overemphasis of the latter form of knowledge in the school curriculum and state politics (34, 0) makes it necessary for the community to be deliberate about enhancing Alaska Native perspectives. The values of the Elders is thus seen to be an important starting point for engagement with the outside world and as important basic values for community members to share in order to ensure culturally appropriate community development (24, +2).

An important aspect of Alaska Native cultures is spending time on the land through activities such as hunting, fishing and berry picking. Therefore, securing the current and future generation's access to and control over village lands is seen as the number one priority (36, +4). Maintaining control over village lands is also seen as a way to influence what happens in the region by allowing or preventing access of certain actors (6, −2 and 10, +1).

Because of the strong emphasis on being connected to the land, Pebble Mine is seen as a dangerous development with high potential risks, not only for the environment but also for the community culture (8, −4). This narrative therefore wants no engagement with the mine, fearful that any contact might help legitimize the project and can be used against the community at a later stage (17, +3). In general, this narrative reflects suspicion towards outside industries offering monetary compensation for what is perceived as extractive use of natural resources, such as sport fishing (25, −1), although some such activities are seen as 'necessary evils' in today's mixed economy.

The narrative emphasizes caution when it comes to allowing outside change into the community (20, +1) and community work is preferred done by locals (2, +1) rather than outside experts (5, −2 and 33, −1). The State is not seen as particularly helpful in furthering community goals (1, −1 and 28, −1). Rather than looking outside for help and guidance, this narrative emphasizes that the village should be more outspoken about their values and approaches to community development and that they have an important role to play in the region (23, −3).

Despite believing in the community's ability to create continuous opportunities for positive change (15, +2), external threats such as Pebble Mine makes this narrative come across as cautious about projections for the future (21, 0) and the ability to adapt to dramatic changes to the land and culture (11, +2 and 18, 0).

5.3. Factor 3: Visioning the future – bridging divides through flexibility in perspectives and worldviews

The third narrative emphasizes having a vision for the future and setting clear goals for community development work (12, +4). It is important that this vision is based on the needs and wants of all community members. Having the community as a whole in mind is a reoccurring theme within this narrative, which emphasizes the importance of consensus decision-making and reaching an agreement before moving ahead with development project (38, +3).

It is important that the community vision is guided by shared basic values (24, +1). However, it is equally important to have room for difference in values and that individuals can live out their particular values even if they divert from the values of other community members. Diverging values are not seen as inherently problematic as long as there is room for dialogue.

Within this narrative, having community members involved and engaged in community development efforts is of utmost importance, and whenever possible local capacity and knowledge should be enhanced and applied (2, +2 and 5, −1). This does not mean, however, that there is never a need for outside input (15, +1). Rather, whether or not to call on outside help should be decided upon on a case-by-case basis.

Being well versed in multiple cultures is seen as a great strength. It is important to be educated in both Native and non-Native culture in order to increase possibilities and self-sufficiency (7, +4). While some ideas and structures from the outside can have a negative impact on the community (32, −1), this will depend on how these are applied. How such ideas and structures are used and the vision guiding their use is crucial for what impact they will have (34, −2). This makes having a vision and engaging consciously with this vision increasingly important.

This perspective shines through in other areas as well. While cultural diversity can be a positive thing for the community, too much diversity that makes it difficult to reach agreement can weaken the community (3, +1). Similarly, while the State is not seen as an important driver of positive community change (28, −1), it is not seen as a hindrance either (1, −2). Instead, how the community is able to engage with the State on a particular issue is what matters. On a similar note, while sport fishing is seen as bringing significant benefits to the community (25, −3), there is definite room for improving community relations with the lodges and tourists (16, 0).

While cultural heritage and knowledge of language and dance is seen as important, now and in the future (22, −3), not being knowledgeable about these cultural aspects is not seen as a thread to individuals and their identity (13, −1). Personal identity and cultural identity is seen as two different things that interact with rather than determine each other. Having all community members be knowledgeable about Yup'ik culture is therefore not seen as critical to community sustainability (14, 0).

Despite being open to change, this narrative also emphasizes the need to be cautious about certain kinds of community change, for instance pointing to the risk of letting just anyone move to the community. Due to the small population size, the community is dependent on good dynamics between each and every community member (20, +1), leading back to the importance of reaching agreement and sharing basic values.

On the issue of Pebble Mine, this narrative presents a pessimistic view on the possible benefits for the community (8, −4), although there are both positives and negatives associated with engaging with the company (17, −1 and 37, 0). Despite perceiving their capacity to influence the mine as relatively low (6, 0), this narrative is essentially positive when it comes to the future of the community (21, +2) and their ability to adapt to changing environmental and social conditions (11, 0 and 18, +1).

6. Discussion

In this section, I pick up central findings from the Q-study and discuss them in relation to the role of flexibility in enabling transformational social change towards enhanced community resilience. I do so firstly by discussing how the concept of flexibility comes across in the data, and secondly exploring how flexibility might contribute towards resilience through community cohesion, collective leadership and enacting alternatives in the here and now. At the end of the discussion, I explore the role of worldviews and problematize the flexibility concept in an Indigenous context, drawing on critiques of community resilience when seen in isolation from larger societal transformations.

6.1. Flexibility of perspectives

Through the Q study, it becomes clear that community members have somewhat different perspectives on what drives social change in Igiugig. This might reflect differences in life experiences and worldviews with some emphasizing the importance of individual action while others focus on preserving a specific set of collective practices. While it makes little sense to talk about differences along cultural and ethnic lines on the basis of such a small group of people, it is interesting to notice that the factor emphasizing the role of individual leadership and the so-called 'can-do' attitude (factor 1) is also the factor with most community members identifying as Caucasian. The factor emphasizing cultural heritage and preservation (factor 2) is the factor with the highest proportion of community members identifying as Alaska Native. The factor taking a both/and stand and emphasizing community visioning (factor 3) is the one with the highest number of community members who identify as both Alaska Native and Caucasian (see Table 3 for demographic information for the three factors).

Of particular interest here is not so much that Natives and non-Natives differ on this particular point, but that the community members that identify with both (or more) cultures and ethnicities advocate for a both/and position in many instances, exhibiting a high level of flexibility in how to understand and engage with issues of community development. In the follow-up interviews, several of the participants who loaded on this third factor highlighted the importance of context in evaluating the statements and reflected on the importance of the community coming together rather than holding on to a particular stance on an issue. The fact that one of the central community leaders loads highly on this third factor (a 65% match) is an interesting observation, which speaks to this individual's approach to leading and might contribute to the high degree of cohesion in the community. Speaking about the logic of her leadership style, she emphasizes the Yup'ik tradition of consensus decision-making and the importance of having the full support of community members before embarking on new development projects or taking a political stance. She also speaks of her late father, a non-Native who was instrumental in bringing the community on its current development path by coupling Native and 'Western' values and approaches. The community continuously looks for new and innovative ways to increase their resilience and wellbeing, but in this process pays close attention to sentiments among community members and the needs of individuals. There is an acute awareness of what is still unknown and beyond the horizon, making the community both proactive and open to change.

In this context, *flexibility* thereby refers to a capacity to take on a range of different perspectives on a given matter, including subjective opinions and identities. Thus, rather than simply bending to different pressures, flexibility implies a conscious and critical engagement with the given situation. The capacity to take on different perspectives and be flexible in how problems and solutions are viewed is identified by O'Brien (2012) as an essential part of deliberate transformation, recognizing that this involves a willingness to *engage in* rather than simply *argue for* innovative thinking. This active engagement has several implications for community resilience, discussed below.

6.1.1. Community cohesion

Community cohesion emerges as an obvious theme through the high correlation between the three factors. While the factors represent nuances in how community change is perceived, only a few statements were ranked significantly different. When looking at the cultural make-up of Igiugig, this cohesion is not obvious. The community Elders grew up on the land and did not encounter mainstream US culture until they were forcefully removed from their homes in order to attend school. Most of the non-Natives living in the community grew up in mainland US in fairly conventional settings. The new generations of Igiugig youth are growing up in a rural setting but with much exposure to urban lifestyles through technology, education and popular culture. Thus, cohesion does not imply that community members are 'the same' or even can relate to each other's life experiences and individual goals. What it implies is an ability to link one's own ambitions with that of the community, tending to the alignment between the individual and the collective. This relates to Ingram et al.'s (2015) notion of the importance of plurivocity in narrative networks, enabling diverse actors to tell their version of the common story, allowing networks to draw on diverse sources of knowledge and encouraging participation towards a common goal - in this case the goal of supporting community wellbeing and self-sufficiency now and into the future. The present study suggests that this process is aided by the ability to take on different perspectives than one's own – what I define as flexibility. Cohesion has implications for resilience through the ability to move forward as a collective, enabling the community to agree on otherwise contested issues.

6.1.2. Collective leadership

Flexibility also plays a role in supporting collective leadership and action in the community. There is no question that certain individuals are very important in furthering community change, such as the community leader referenced above. Several Elders are also regarded highly, especially in terms of their knowledge of Yup'ik cultural practices and values. Several prominent community members that have now passed away remain a source of inspiration and in a sense continue to drive change. On a similar note, future generations act as a driver of change by inspiring community members to secure the community into the future. These latter groups of social change 'drivers' reflect a holistic worldview where past, present and future are not linear and isolated entities but rather interact and influence one another. This seems to give community members a wider operating space by drawing on both past and future realities to create alternatives for the present moment.

Despite the significance of certain individuals, and despite the high level of independence and self-sufficiency among individual households, the community is working as a collective. Some work to create community change through individual action, some are guided by a strong sense of cultural identity, and others still take a bird's eye perspective on community development and work to build bridges between different knowledge systems and traditions. The community leaders are not leaders in the conventional sense of the word, convincing others of their own ideas and preferences, but adhere to the collective field, applying their individual leadership skills to enable collective action.

This highlights the tension between perceptions of individual and collective agency and action in enhancing community resilience. In the social-ecological systems literature this has not been thoroughly explored. Westley et al. (2013) argue that the role played by individual agency in terms of community resilience and sustainability is an important next focus area in resilience research. However, going back to the point made by Kirmayer et al. (2009), in an Indigenous context where notions of individuality differ from that of a 'Western' perspective, informed by a Newtonian-Cartesian worldview of humans as separated from nature and one another (Alfred and Corntassel, 2005), the role of agency in moving communities and society towards sustainability might be better understood in a collective frame.

6.1.3. Enacting alternatives in the here and now

The flexibility described in this study does not mean that any idea or solution is welcomed uncritically into the community. Rather, the flexibility of Igiugig is characterized by a high level of reflexivity and dialogue among community members as to the pros and cons of a situation. Sometimes this means contesting systems of capitalism and colonialism, while other times it means working for change within such systems. Working within a northern Alaskan context, Hillmer-Pegram (2016) argues that the relationship between capitalism and community resilience is complex and conflicted with capitalism both at odds with traditional values and a valid strategy for maintaining adaptive capacity. In Igiugig, considerations for how to proceed within this conflicted context are guided by the continuously developing community vision, which draws on ideas and wishes of community members. An underlying theme of this vision is self-sufficiency and independence, informed by a desire to decolonize both political institutions and mental and emotional patterns.

Igiugig is not engaged in decolonization via resistance alone, although some resistance is necessary, but by building a vision of what a truly decolonized community could look like and taking steps towards realizing that vision. This aligns with calls from some Indigenous activists and scholars to "move beyond a resurgent Indigenous politics that seeks to inhibit the destructive effects of capital to one that strives to create *Indigenous alternatives* to it" (Coulthard, 2014, p. 170). According to Alfred (2009, p. 80, xviii) a de-colonized present and future is dependent on a critical resurgence based on what he terms "self-conscious traditionalism", both recognizing that culture changes while identifying certain "beliefs, values and principles that form the persistent core of a community's culture." In Igiugig, this includes their efforts to incorporate Yup'ik language into the classroom, and bringing the classroom into nature to combine academic knowledge with skills and knowledge associated with a life on the land. Some such ideas are slowly realized through official political channels, while others are implemented under the radar of potentially critical voices. In the context of the school, this latter approach has been rather successful in shifting political opinion on curriculum development and teaching approaches in the school district, largely influenced by the fact that the Igiugig School has one of the highest grade point averages in the district. Thus, efforts at the community-level influence regional development by not only articulating new ideas and approaches but enacting them in the community and showing the positive results – making them an undeniable force of change.

The ability of Igiugig to enact alternatives to the mainstream narrative of rural Alaskan villages invites further questioning of the assumptions inherent to a Newtonian worldview. For instance, rather than accepting the notion that no two objects can occupy the same space at the same time, a view on space as co-constructed allows for an investigation of alternative realities occupying the 'same' space (El Khoury, 2015). This becomes important when talking about deliberately transforming social and economic systems in a community context. Reflecting on alternative enactments of globalization, El Khoury (2015, p. 5) argues that "while it is true that virtually anything that can generate an income stream can be capitalized and thus subsumed (…) it need not colonize our imaginations and ability to conceive and practice alternatives also." Similarly, referring to the concept of a 'multicentric' economy, in which the economic system is subjected to a moral hierarchy, Hornborg (2007, p. 65) reminds us that "it is entirely possible to transform the idea and institution of money." In Igiugig, imaginations of a different reality, economic and otherwise, is materializing in many ways, aided in part by the capacity to take on different perspectives of what is and could be. The community is thus engaged in what could be called "the affirmative *enactment* of another modality of being, a different way of relating to and with the world" (Coulthard, 2014, p. 169) – not by way of isolation from the rest of society but by way of flexible and critical engagement with it.

6.2. The importance of worldviews

Notions of an Indigenous worldview is present throughout the previous paragraphs. Although Igiugig is not an all-Indigenous community and many community members identify as partially or fully Caucasian, community development is guided by visions and values closely related to a Yup'ik and Alaska Native worldview, with implications for how individuals engage with the collective as well as how the past and future relate to the present. The ability of Igiugig residents to engage in deliberately transforming their community towards increased resilience seems to be inherently linked to this worldview. Other research on adaptation and transformation in Indigenous cultures point to similar implications. Apgar et al. (2015), found the capacity for adaptation and transformation among the Guna people in Panama to be enabled through social cohesion, characterized by individuals having a collective identity and the existence of diverse groups within the collective, and an ability to manage the relationship between own knowledge systems and that of others, characterized by collective decision making with input from diverse views. These qualities and practices largely mirror those in Igiugig where social cohesion and flexible perspective-taking are some of the central findings from the Q-study.

Worldviews have also been found to be of particular importance for individual resilience in an Indigenous context. Exploring resilience among Alaska Native youth, Wexler (2014, p. 87) found that culture understood narrowly as certain activities and skills do not necessarily translate to individual resilience, whereas culture understood in a larger perspective as part of an Indigenous worldview that transcends time and space provides "flexible sources of strength" in dealing with both community and personal hardship. The role of worldviews and perspective-taking capacities in the context of global environmental and social change and the need for deliberate transformation is an understudied phenomenon ripe for further investigation (Scoville-Simonds, 2018; Hochachka, Unpublished results).

6.3. Community resilience revisited

Finally, a note on the concept of community resilience and the potential pitfalls of such a focus in research on global environmental change. Throughout the paper, I have argued that Igiugig is engaged with transformational social change that enhances their resilience and that their high degree of flexibility is part of what enables such processes. However, this community does not exist in a vacuum, and the political, economic and social policies and trends happening at various scales have very real implications for the kind of changes the community is able to enact. The Pebble Mine, mentioned in all three narratives in the Q study as something community members are wary of, represents possible large-scale social and environmental changes happening outside the sphere of influence of the community. Worst-case scenario, this development could pose a direct threat to the deliberate transformations happening at the community level through disruptive socio-economic and environmental impacts.

The academic discussions about community resilience tend to place all responsibility for building such resilience on the communities themselves (Kirmayer et al., 2009; MacKinnon and Derickson, 2013). Building community resilience is not only dependent on community members, but depends on relationships with other communities and outside institutions (Wilson, 2012). Similarly, building community resilience is not *the* solution to issues of economic disparity, social problems and climate change. While much is possible at the community level, as is exemplified in Igiugig, this work must be coupled with supportive processes happening at the other scales. Supportive not only in the sense that they support the efforts of the community, but that they support the large-scale societal transitions and transformations that will have to happen alongside local initiatives. Thus, it is problematic when the State of Alaska rhetorically supports community

resilience (Igiugig has received several awards for their sustainability efforts), while cutting funding for such work to be financed as well as supporting large-scale industrial activity likely to jeopardize the viability of local economic activities, such as commercial, sport and subsistence fishing. This observation mirrors ongoing debates within anti-oppression and decolonization literature on the limits of concepts such as empowerment and self-efficacy, arguing that they tend to "turn attention inward and mobilize people to change themselves and better adapt to situations of oppression (…) rather than mobilizing people to dismantle the environmental or structural sources of oppression" (Phillips et al., 2015, p. 369).

Thus, there are limits to agency in a rural community, be it individual or collective, no matter the flexibility and creativity applied. In our analyses of how transformational social change happens and can be supported, we need to identify exactly where these limits exist so that our case studies can inform large-scale transformations towards sustainability. This need is well established within the social-ecological systems literature, where the concept of panarchy brings our attention to the ways in which states and dynamics at other scales influence the system through cross-scale interactions (Walker et al., 2004). Similarly, although this study has focused on the role of flexibility in community resilience, there is no reason to assume that this quality is limited to local initiatives and Indigenous contexts. Rather, what this research indicates is that a call for flexibility should be extended beyond the community context, to include practitioners and politicians at all levels working with social-ecological systems, whether the topic is decarbonization, resource management or poverty reduction. This requires an investigation of own worldviews and perspectives, critically reviewing assumptions about what the problems are and what solutions might be appropriate, daring to ask 'what if?' and take steps towards enacting alternatives in the here and now, rather than waiting for 'the system' to change.

7. Conclusion

This paper set out to explore what enables deliberate transformations towards enhanced community resilience in an Indigenous context, focusing on the role of flexibility in this process. The Q-study shows that opinions on what drives social change in the community of Igiugig can be boiled down to three distinct narratives, pointing to great community cohesion as well as space for diversified expression of community culture. While the first two narratives focus on individual agency and cultural heritage, respectively, the third narrative expresses a meta-perspective where more emphasis is placed on community visions and collective community building than any one stance on community changes as 'good' or 'bad.' Based on the Q-study, flexibility of perspectives is identified as a central quality enabling the community to engage in deliberate transformation and supporting resilience in various ways, including through cultural cohesion, collective leadership and enacting alternatives in the here and now. These factors are in turn seen to be deeply tied to an Indigenous worldview based on an understanding of humans and nature as connected, entangled and situated within a cyclical notion of time, in which past, present and future are all present at any moment, giving direction and inspiration to community development.

The high level of flexibility is visible in how the community interact with existing structures and systems. While engaged in a process of decolonization – breaking with notions of western superiority and capitalist extractive economies – they do not do so through resistance alone. Rather, they do this through the active creation of alternatives, sometimes within the frames of the colonial and capitalist system. This often requires the community taking a 'both/and' position in terms of engagement with outside actors and decisions on community development.

The findings allude to the need for more research on how worldviews and perspective-taking capacities translate into transformations at various scales, including the link between individual and collective agency in this process. More research is also needed on the ongoing enactments of alternative realities that are occurring across the globe, and in that process identifying both the enabling conditions of such work as well as the limitations. Such research is likely to aid in the necessary efforts of scaling up and out.

Finally, since deliberate transformation is not reserved to the local level, but needs to occur at every scale simultaneously, flexible perspective taking is likely to be a relevant quality of people in a wide range of positions across multiple scales. This opens up questions of how to critically engage with worldviews, perspectives and values, in an effort to align interior and exterior transformations towards sustainability.

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References

Alfred, T., 2009. Peace, Power, Righteousness: An Indigenous Manifesto, 2 ed. Oxford University Press, Don Mills, Ont., New York.
Alfred, T., Corntassel, J., 2005. Being indigenous: resurgences against contemporary colonialism. Gov. Oppos. 40, 597–614. https://doi.org/10.1111/j.1477-7053.2005.00166.x.
Apgar, M.J., Allen, W., Moore, K., Ataria, J., 2015. Understanding adaptation and transformation through indigenous practice: the case of the Guna of Panama. Ecol. Soc. 20. https://doi.org/10.5751/ES-07314-200145.
Berkes, F., Jolly, D., 2001. Adapting to climate change: social-ecological resilience in a Canadian western arctic community. Conserv. Ecol. 5. https://doi.org/10.5751/ES-00342-050218.
Berkes, F., Ross, H., 2013. Community resilience: toward an integrated approach. Soc. Nat. Resour. 26, 5–20. https://doi.org/10.1080/08941920.2012.736605.
Bischoff-Mattson, Z., Lynch, A.H., Joachim, L., 2018. Justice, science, or collaboration: divergent perspectives on Indigenous cultural water in Australia's Murray-Darling Basin. Water Pol. wp2018145. https://doi.org/10.2166/wp.2018.145.
Brown, K., 2014. Global environmental change I: a social turn for resilience? Prog. Hum. Geogr. 38, 107–117. https://doi.org/10.1177/0309132513498837.
Brown, L., Strenga, S., 2005. Research As Resistance : Critical, Indigenous and Anti-oppressive Approaches. Canadian Scholar's Press, Toronto.
Cameron, E.S., 2012. Securing Indigenous politics: a critique of the vulnerability and adaptation approach to the human dimensions of climate change in the Canadian Arctic. Glob. Environ. Change 22, 103–114. https://doi.org/10.1016/j.gloenvcha.2011.11.004.
Chapin, F.S., Knapp, C.N., Brinkman, T.J., Bronen, R., Cochran, P., 2016. Community-empowered adaptation for self-reliance. Curr. Opin. Environ. Sustain. 19, 67–75. https://doi.org/10.1016/j.cosust.2015.12.008.
Chapin, F.S., Peterson, G., Berkes, F., Callaghan, T.V., Angelstam, P., Apps, M., Beier, C., Bergeron, Y., Crépin, A.-S., Danell, K., Elmqvist, T., Folke, C., Forbes, B., Fresco, N., Juday, G., Niemelä, J., Shvidenko, A., Whiteman, G., 2004. Resilience and vulnerability of northern regions to social and environmental change. AMBIO J. Hum. Environ. 33, 344–349. https://doi.org/10.1579/0044-7447-33.6.344.
Chevalier, J.M., Buckles, D.J., 2013. Participatory Action Research: Theory and Methods for Engaged Inquiry. Routledge.
Cote, M., Nightingale, A.J., 2012. Resilience thinking meets social theory: situating social change in socio-ecological systems (SES) research. Prog. Hum. Geogr. 36, 475–489. https://doi.org/10.1177/0309132511425708.
Coulthard, G.S., 2014. Red Skin, White Masks: Rejecting the Colonial Politics of Recognition. University of Minnesota Press, White Masks.
Davidson, D.J., 2010. The applicability of the concept of resilience to social systems: some sources of optimism and nagging doubts. Soc. Nat. Resour. 23, 1135–1149. https://doi.org/10.1080/08941921003652940.
El Khoury, A., 2015. Globalization Development and Social Justice: A Propositional Political Approach. Routledge, Taylor & Francis Group.
Fletcher, D., Sarkar, M., 2013. Psychological resilience: a review and critique of definitions, concepts, and theory. Eur. Psychol. 18, 12–23. https://doi.org/10.1027/1016-9040/a000124.
Folke, C., Carpenter, S., Walker, B., Scheffer, M., Chapin, T., Rockström, J., 2010. Resilience thinking: integrating resilience, adaptability and transformability. Ecol. Soc. 15. https://doi.org/10.5751/ES-03610-150420.
Ford, J.D., Pearce, T., Duerden, F., Furgal, C., Smit, B., 2010. Climate change policy responses for Canada's Inuit population: the importance of and opportunities for adaptation. Glob. Environ. Change 20, 177–191. https://doi.org/10.1016/j.

gloenvcha.2009.10.008.
Golden, D.M., Audet, C., Smith, M.A.(Peggy), 2015. "Blue-ice": framing climate change and reframing climate change adaptation from the indigenous peoples' perspective in the northern boreal forest of Ontario, Canada. Clim. Dev. 7, 401–413. https://doi.org/10.1080/17565529.2014.966048.
Gram-Hanssen, I., 2012. Youth Creating Sustainable Communities in Rural Alaska. University of Alaska, Fairbanks, Fairbanks, Alaska.
Gram-Hanssen, I., 2017. Leaving, staying or belonging: exploring the relationship between formal education, youth mobility and community resilience in rural Alaska". Polar Geogr. 41, 1–25. https://doi.org/10.1080/1088937X.2017.1414083.
Grimwood, B.S.R., Doubleday, N.C., Ljubicic, G.J., Donaldson, S.G., Blangy, S., 2012. Engaged acclimatization: towards responsible community-based participatory research in Nunavut. Can. Geogr. Géographe Can. 56, 211–230. https://doi.org/10.1111/j.1541-0064.2012.00416.x.
Hillmer-Pegram, K.C., 2016. Resilience to capitalism, resilience through capitalism: indigenous communities, industrialization, and radical resilience in Arctic Alaska (Thesis).
Hochachka, G., Unpublished data.
Hornborg, A., 2007. Learning from the Tiv: why a sustainable economy would have to be multicentric. Cult. Agric. 29, 63–69.
Hovelsrud, G.K., Smit, B. (Eds.), 2010. Community Adaptation and Vulnerability in Arctic Regions. Springer, Netherlands, Dordrecht https://doi.org/10.1007/978-90-481-9174-1.
Huskey, L., 2005. Challenges to economic development: dimensions of "Remoteness" in the North. Polar Geogr. 29, 119–125. https://doi.org/10.1080/789610129.
Hutchinson, R.N., Shin, S., 2014. Systematic review of health disparities for cardiovascular diseases and associated factors among American Indian and Alaska native populations. PLoS One 9, e80973. https://doi.org/10.1371/journal.pone.0080973.
Ingram, M., Ingram, H., Lejano, R., 2015. Environmental action in the anthropocene: the power of narrative networks. J. Environ. Pol. Plan. 1–16. https://doi.org/10.1080/1523908X.2015.1113513.
Katz-Gerro, T., Cvetičanin, P., Leguina, A., 2017. Consumption and social change: social change and the coming of post-consumer society. In: Cohen, M.J., Brown, H.S., Vergragt, P.J. (Eds.), Social Change and the Coming of Post-Consumer Society: Theoretical Advances and Policy Implications. Routledge, New York, NY, pp. 95–124.
Kirmayer, L.J., Dandeneau, S., Marshall, E., Phillips, M.K., Williamson, K.J., 2011. Rethinking resilience from indigenous perspectives. Can. J. Psychiatry 56, 84–91.
Kirmayer, L.J., Sehdev, M., Whitley, R., Dandeneau, S.F., Isaac, C., 2009. Community resilience: models, metaphors and measures. J. Aborig. Health Vic. 5, 62–117.
Knaus, K., Hund, A., 2015. Traditional inuit family structure and values as influenced by the modern economic system: lessons about the concept of family as the unifying agent for the wellness of culture, community and society. Int. J. Health Wellness Soc. 5, 69–81.
Loring, P.A., Gerlach, S.C., Penn, H.J., 2016. "Community Work" in a climate of adaptation: responding to change in rural Alaska. Hum. Ecol. 44, 119–128. https://doi.org/10.1007/s10745-015-9800-y.
Loring, P.A., Hinzman, M.S., 2018. "They're all really important, but…": unpacking how people prioritize values for the marine environment in Haida Gwaii, British Columbia. Ecol. Econ. 152, 367–377.
MacKinnon, D., Derickson, K.D., 2013. From resilience to resourcefulness: a critique of resilience policy and activism. Prog. Hum. Geogr. 37, 253–270. https://doi.org/10.1177/0309132512454775.
Marshall, G.R., 2013. Transaction costs, collective action and adaptation in managing complex social–ecological systems. Ecol. Econ. Trans. Costs Environ. Pol. 88, 185–194. https://doi.org/10.1016/j.ecolecon.2012.12.030.
Maton, K.I., 2008. Empowering community settings: agents of individual development, community betterment, and positive social change. Am. J. Commun. Psychol. 41, 4–21. https://doi.org/10.1007/s10464-007-9148-6.
Melvin, A.M., Larsen, P., Boehlert, B., Neumann, J.E., Chinowsky, P., Espinet, X., Martinich, J., Baumann, M.S., Rennels, L., Bothner, A., Nicolsky, D.J., Marchenko, S.S., 2017. Climate change damages to Alaska public infrastructure and the economics of proactive adaptation. Proc. Natl. Acad. Sci. 114, E122–E131. https://doi.org/10.1073/pnas.1611056113.
Moore, M.-L., Tjornbo, O., Enfors, E., Knapp, C., Hodbod, J., Baggio, J., Norström, A., Olsson, P., Biggs, D., 2014. Studying the complexity of change: toward an analytical framework for understanding deliberate social-ecological transformations. Ecol. Soc. 19. https://doi.org/10.5751/ES-06966-190454.
O'Brien, K., 2012. Global environmental change II: from adaptation to deliberate transformation. Prog. Hum. Geogr. 36, 667–676. https://doi.org/10.1177/0309132511425767.
Parsons, M., Nalau, J., 2016. Historical analogies as tools in understanding transformation. Glob. Environ. Change 38, 82–96. https://doi.org/10.1016/j.gloenvcha.2016.01.010.
Paschen, J.-A., Ison, R., 2014. Narrative research in climate change adaptation—exploring a complementary paradigm for research and governance. Res. Pol. 43, 1083–1092. https://doi.org/10.1016/j.respol.2013.12.006.
Pebble Partnership: Why Mine? [WWW Document], n/d. URL < https://www.pebblepartnership.com/why.html#section-jobs > (accessed 6.18.18).
Phillips, N.L., Adams, G., Salter, P.S., 2015. Beyond adaptation: decolonizing approaches to coping with oppression. J. Soc. Polit. Psychol. 3, 365–387. https://doi.org/10.5964/jspp.v3i1.310.
Robards, M., Alessa, L., 2004. Timescapes of community resilience and vulnerability in the circumpolar North. Arctic 57, 415–427.
Sarche, M., Spicer, P., 2008. Poverty and health disparities for american indian and Alaska native children. Ann. N. Y. Acad. Sci. 1136, 126–136. https://doi.org/10.1196/annals.1425.017.
Scott, J.C., 1990. Domination and the Arts of Resistance: Hidden Transcripts, Domination and the Arts of Resistance: Hidden Transcripts. Yale University Press, New Haven, CT, US.
Scoville-Simonds, M., 2018. Climate, the Earth, and God – entangled narratives of cultural and climatic change in the Peruvian Andes. World Dev. 110, 345–359. https://doi.org/10.1016/j.worlddev.2018.06.012.
Shah, S.H., Angeles, L.C., Harris, L.M., 2017. Worlding the intangibility of resilience: the case of rice farmers and water-related risk in the philippines. World Dev. 98, 400–412. https://doi.org/10.1016/j.worlddev.2017.05.004.
Smith, A., Stirling, A., 2010. The politics of social-ecological resilience and sustainable socio-technical transitions. Ecol. Soc. 15. https://doi.org/10.5751/ES-03218-150111.
Smith, L.T., 2013. Decolonizing Methodologies: Research and Indigenous Peoples. Zed Books Ltd.
Stephenson, W., 1936. The foundations of psychometry: four factor systems. Psychometrika 1, 195–209. https://doi.org/10.1007/BF02288366.
Vaas, J., Driessen, P.P.J., Giezen, M., van Laerhoven, F., Wassen, M.J., in Press. Let me tell you your problems. Using Q methodology to elicit latent problem perceptions about invasive alien species. Geoforum. https://doi.org/10.1016/j.geoforum.2018.11.018.
Veland, S., Scoville-Simonds, M., Gram-Hanssen, I., Schorre, A., El Khoury, A., Nordbø, M., Lynch, A., Hochachka, G., Bjørkan, M., 2018. Narrative matters for sustainability: the transformative role of storytelling in realizing 1.5 °C futures. Curr. Opin. Environ. Sustain Sustain. Gov. Transform. 31, 41–47. https://doi.org/10.1016/j.cosust.2017.12.005.
Walker, B., Holling, C.S., Carpenter, S., Kinzig, A., 2004. Resilience, adaptability and transformability in social–ecological systems. Ecol. Soc. 9. https://doi.org/10.5751/ES-00650-090205.
Warburton, D. (Ed.), 2013. Community and Sustainable Development: Participation in the Future. Routledge.
Watts, S., Stenner, P., 2005. Doing Q methodology: theory, method and interpretation. Qual. Res. Psychol. 2, 67–91. https://doi.org/10.1191/1478088705qp022oa.
Watts, S., Stenner, P., 2012. Doing Q Methodological Research: Theory, Method and Interpretation. SAGE Publications Ltd, 1 Oliver's Yard, 55 City Road, London EC1Y 1SP United Kingdom. https://doi.org/10.4135/9781446251911.
Westley, F., Tjornbo, O., Schultz, L., Olsson, P., Folke, C., Crona, B., Bodin, Ö., 2013. A theory of transformative agency in linked social-ecological systems. Ecol. Soc. 18. https://doi.org/10.5751/ES-05072-180327.
Wexler, L., 2006. Inupiat youth suicide and culture loss: changing community conversations for prevention. Soc. Sci. Med. 63, 2938–2948. https://doi.org/10.1016/j.socscimed.2006.07.022.
Wexler, L., 2009. Identifying colonial discourses in Inupiat young people's narratives as a way to understand the no future of Inupiat youth suicide. Am. Indian Alsk. Native Ment. Health Res. 16, 1–24. https://doi.org/10.5820/aian.1601.2009.1.
Wexler, L., 2014. Looking across three generations of Alaska Natives to explore how culture fosters indigenous resilience. Transcult. Psychiatry 51, 73–92. https://doi.org/10.1177/1363461513497417.
Wilson, G.A., 2012. Community resilience, globalization, and transitional pathways of decision-making. Geoforum 43, 1218–1231. https://doi.org/10.1016/j.geoforum.2012.03.008.
Zabala, A., Pascual, U., 2016. Bootstrapping Q methodology to improve the understanding of human perspectives. PLoS One 11, e0148087. https://doi.org/10.1371/journal.pone.0148087.
Zabala, A., Sandbrook, C., Mukherjee, N., 2018. When and how to use Q methodology to understand perspectives in conservation research. Conserv. Biol. 32, 1185–1194. https://doi:10.1111/cobi.13123.

III

Article

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Individual and collective leadership for deliberate transformations: Insights from Indigenous leadership

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Abstract

Deliberately transforming society toward equitable and sustainable futures requires leadership. But what kind of leadership? While the dominant understanding of leadership often centers on the individual, the concept of collective leadership is receiving increased attention. Yet, the relationship between individual and collective leadership remains elusive and has been given limited attention in the transformation literature. In this study, I explore how leadership is understood and enacted in an Alaska Native community engaged in transforming community systems toward enhanced sustainability. I draw on Indigenous leadership research, organized through four interrelated analytical lenses: the individual leader, leadership through culture, leadership through process, and leadership through integration. I find that leadership in the community can be seen as something simultaneously individual and collective and argue that an Indigenous relational ontology makes it possible to imagine leadership as an "individual-collective simultaneity." In the discussion, I highlight the connections to emerging theories and approaches within "mainstream" leadership research, pointing to the potential for bridging disciplines and paradigms. For leadership and transformation researchers to engage in this bridging work, we must reflect on and reconsider our assumptions as to what agency for transformation is, with important implications for how we work to support transformations. While "ontological bridge building" creates tensions, it is through holding and working through these creative tensions that we can start to see pathways toward equitable and sustainable futures.

Keywords

Indigenous leadership, paradigms, Alaska Natives, sustainability, deliberate transformation, collective leadership, Indigenous relational ontology

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Introduction

> *In February 2017, Alaskan Senator Dan Sullivan presented his Alaskan of the Week award to the Village Council President from the Yup'ik village of Igiugig in southwestern Alaska. Praising her as a community leader at the forefront of what he termed a 'rural revolution,' Senator Sullivan emphasized her personal qualities, including her creativity and determination in "making the impossible in some of the most extreme parts of our country in terms of rural living seem possible"* (Sullivan, 2017).

> *In September 2020, Senator Sullivan again honored the village of Igiugig with his Alaskan of the Week award, but this time he went "plural in a big way." Rather than any one individual, Senator Sullivan awarded the whole community of Igiugig, in recognition of their ability to come together to ensure the well-being of all residents. In his award speech, Senator Sullivan emphasized, "this community has maintained a strong sense of connection with each other, which is so important"* (Sullivan, 2020).

Leadership is a key aspect of sustainability (Ferdig, 2007). In the context of coupled socio-environmental crises, such as climate change, biodiversity loss, social inequality, and economic instability, there is a growing emphasis on leadership capable of deliberately transforming societal systems toward enhanced sustainability and equity (Case et al., 2015; Kuenkel, 2019; Marshall et al., 2017; Meijerink and Stiller, 2013; Vignola et al., 2017). This increased focus on leadership and leaders is also true for rural Alaska, where leaders that enhance community sustainability are increasingly called for, and celebrated, as exemplified in the first anecdote above. Yet, as shown in the second anecdote, sustainability is also furthered through collective efforts. Thus, the notion of the individual leader reflects only part of the story of leadership for sustainability.

In this study, I inquire into the nature of leadership in the Yup'ik community of Igiugig in southwestern Alaska, emphasizing the relationship between individuals and groups in processes of deliberate transformation. In order to engage with a deeper and broader understanding of leadership as it unfolds in the community, I work from the perspectives of what I collectively refer to as Indigenous leadership, arguing that these perspectives allow for a more holistic understanding of leadership for sustainability that includes the individual as well as the collective.

This study speaks to the growing discussion within social change research on the role of agency in deliberate transformations (Abson et al., 2017; Moore et al., 2014; Patterson et al., 2017; Pesch, 2015; Werbeloff et al., 2016; Westley et al., 2013). In their investigation into some of the main conceptual approaches for analyzing societal transitions and transformations, Patterson et al. (2017) found that all such approaches highlight the importance of human agency, often expressed through leadership, entrepreneurship, or management. Yet, rather than understanding agency for transformations as "a single individual's vision and steering," socio-environmental change researchers are increasingly calling for broader perspectives, pointing to the interconnections between individual agency and "systemic shifts in institutional underpinnings such as mental models, management routines, and resource flows" (Westley et al., 2013: p. 1). In their study on how to assess sustainability transformations, Salomaa and Juhola (2020, p. 8) observe that "individual change and collective change have traditionally been observed in parallel fields," and go on to suggest that "the question of the relationship between and the embedded nature of individual and collective changes deserves more attention." In the context of leadership studies, this calls for research into the kinds of relationships and processes that characterize leadership in transformations toward sustainability, and in particular, the relationship between individuals and collectives in leading change.

Within leadership studies, there has been a shift toward an understanding of leadership "in the plural" (Contractor et al., 2012; Denis et al., 2012; Hernandez et al., 2011). There are several different strands within this shift, including shared leadership (Pearce et al., 2007), collective leadership (Eva et al., 2019), or networked leadership (Balkundi and Kilduff, 2005), as well as leadership created through practice (Raelin, 2016a) or as a function of interaction (Uhl-Bien et al., 2007). The aim of this scholarship is to unsettle the myth of the individual heroic leader and reformulate leadership as something shared or something emerging through process. Despite these advancements, the questions of what leadership *is*, what forms of *agency* brings it about, and the *relationship* between individual and collective leadership are far from settled. In her overview of the shift from an actor-view to a process-view of leadership, Simpson (2016) points out that this move implies a shift in the fundamental assumptions about what leadership *is* by understanding action and agency as performative rather than representative of reality. While both an actor-view and a process-view have their merit in an analysis by opening up for different ways of conceiving of leadership, Simpson (2016, p. 175) warns that given the distinct ontological assumptions underpinning these different orientations, we should "be wary of any attempt to produce a grand unified theory of leadership." Yet, while ontological differences are important to consider, insisting on keeping the actor-view and the process-view separate seems counterproductive when aiming for a deeper understanding of leadership.

Instead, in this study, I argue that Indigenous leadership[1] can help resolve some of the perceived tensions between an individual and a collective view of leadership by providing detailed accounts of exactly how individuals and collectives come to matter through their inseparability and their becoming together. Within many Indigenous[2] cultures, leadership is inherently relational in that the individual is seen to develop within the context of community, and all phenomena are part of an intricate interrelationship characterized by co-emergence, codependence, and reciprocity (Cajete, 2016). Recent years have seen an increase in publications that present insights on leadership from the perspective of various Indigenous cultures (Edwards et al., 2013; Gambrell, 2016; Henry and Wolfgramm, 2018; Ruwhiu and Elkin, 2016; Turner et al., 2019; Verbos and Humphries, 2014; Wolfgramm et al., 2016). This is in part due to the increased recognition of the importance of context for understanding leadership as well as a growing "dissatisfaction with the overwhelming dominance of Anglo-American values, interests and theoretical frameworks that have cast the 'non-Western,' 'alternative' or 'Indigenous' to the margins" (Ruwhiu and Elkin, 2016: p. 317). As Liu and Baker (2016, p. 439) note, in both popular and academic discourse, "'doing leadership' is inextricably linked to 'doing whiteness.'"

Several of the abovementioned authors suggest paths of convergence between Indigenous and "mainstream" leadership research, yet little empirical research has been done to explicitly connect these two paradigms. Furthermore, insights from Indigenous leadership research have yet to make a significant mark on the "mainstream" leadership literature and, importantly for this present study, the literature on sustainability transformations. Based on an empirical inquiry into leadership in the community of Igiugig, this study contributes toward a dialog between Indigenous and non-Indigenous leadership paradigms. The purpose of this engagement is to generate and share knowledge on the nature of leadership in deliberate transformations toward sustainability and the relationship between the individual and the collective in this process.

I start the study by presenting central concepts and perspectives from Indigenous leadership research and theorizing, including some specific to Yup'ik culture, organized as four interrelated analytical lenses: the individual leader, leadership through culture, leadership through process, and leadership through integration. I then present insights from conversations with Igiugig community members that shed light on the nuances of leadership in the community. The analysis enables a view

on leadership that is *simultaneously* individual and collective and shows individuals and collectives as emerging through a process of co-becoming. In the discussion, I relate the insights from Igiugig back to the subfields of collective and processual leadership. I argue for the possibility of building bridges between different perspectives, disciplines, and paradigms as an important step toward addressing the deep need for respecting and lifting up Indigenous perspectives in matters of sustainability. Finally, I argue that the interrelated nature of individuals and collectives explored in this study provides valuable insights into the conceptualization of agency within transformation research, with important implications for how we understand and support sustainability transformations.

In many ways, this study presents my own coming to terms with leadership as it is enacted in Igiugig and as it is understood and expressed by Igiugig community members. My research does not "uncover" something that was previously "unknown," on the contrary, the people of Igiugig are fully aware of the *what*, *how*, and *why* of their efforts. Likewise, as a non-Indigenous researcher, I do not attempt to contribute to the field of Indigenous leadership per se. Instead, I share insights that emerged from my own process of engaging with the enactment of leadership in Igiugig, based on subsequent reflections on and questioning of assumptions about leadership and agency common within the study of sustainability transformations. With this study, I contribute toward the opening up of this field to other paradigms and ways of knowing that enables us to better understand and support sustainability transformations now and in the future.

Indigenous leadership: four interrelated analytical lenses

Indigenous leadership encompasses "a continuum of styles that defy any simple reduction" (Warner and Grint, 2006: p. 232). Yet, there are fundamental similarities between the worldviews of Indigenous peoples that inform how leadership was and is conceptualized and expressed across this continuum. According to Blackfoot scholar Little Bear (2000), for instance, the Indigenous knowledge systems across Turtle Island[3] (North America) are all characterized by being holistic, cyclical, generalist, process-orientated, and grounded in a particular place. Similarly, Tewa scholar Cajete (2016, p. 370) points out that despite the cultural and linguistic differences between Indigenous peoples, "there are underlying similarities in their focus on the nature of interrelationship and the development of individuals in the context of community." In what follows, I bring forth some of the central concepts from within the Indigenous leadership continuum, with special emphasis on the context of Turtle Island, focusing on insights related to the relationship between the individual and the collective. I have structured this section according to four interrelated analytical lenses: the individual leader, leadership through culture, leadership through process, and leadership through integration. Besides the Indigenous leadership literature presented below, this structure is informed by Igiugig community members' perspectives on the drivers of change in their community (Gram-Hanssen, 2019) as well as the different assumptions as to the nature of leadership within "mainstream" leadership research, as articulated by Simpson (2016).

Individual leader

Despite Europeans' observation upon arrival on Turtle Island that "No one seemed to be in charge of anything" (Deloria and Lytle, 1984, p. 9, referenced in Gladstone and Pepion, 2017: p. 575), most Native American tribes were structured according to specific manifestations of leadership. In fact, much Indigenous leadership research mentions the importance of individual leaders in traditional and contemporary Indigenous societies. Yet, how such individuals come to be leaders and what their

roles are varies greatly from the (largely "Western") notion of the individual hierarchical leader exerting her or his will on the "followers" (Warner and Grint, 2006). In the context of traditional Yup'ik society, leadership was endowed based on skills and personal qualities, such as being a successful hunter or being knowledgeable about plant medicines. Yet, skills alone were not enough. Rather, how those skills translated into community well-being was what made someone a leader (Fienup-Riordan, 2005). In exploring the concept of "Indigeneity," Harris and Wasilewski (2004, p. 493) describe how contemporary Indigenous leadership "arises from the assumption of responsibilities arising out of our relationships and the roles in society these relationships engender." Based on care rather than coercion, the most important responsibility of a leader is to "create the social space in which productive relationships can be established and take place" (Harris and Wasilewski, 2004: p. 493). The idea of the leader is in many Indigenous contexts closely linked to the idea of the servant, in that a leader is tasked with ensuring that the vision of the people comes to fruition. Exploring traditional leadership among the Yup'ik of western Alaska, Fienup-Riordan (1990, p. 202) found that "the ideal Yup'ik leader reflected the will of the people." Similar notions are found among First Nations in Canada, where leaders are seen as offering "a servant-type service for the good of all" (McLeod, 2012: p. 43).

Within Indigenous leadership theorizing, the notion of service is related to the concepts of gift, responsibility, and reciprocity. In the context of First Nations in Canada, for instance, Anishnabe Midekway and Nehiy/naw Cree scholar Leon (2012) finds that serving the community is both a gift and a responsibility. Echoing this sentiment, Mi'kmaq scholar Pidgeon (2012, p. 147) defines First Nation leadership as a practice that "connects the physical, emotional, cultural, and spiritual with the four *R*'s—respect, relevance, reciprocity, and responsibility." Ruwhiu and Cone (2013) describe Maori leadership as a form of pragmatic leadership based on the inherent connectedness of human beings and spirit, emphasizing how such leaders are seen as responsible for the well-being of their communities. Thus, while the individual leader is important, it is his or her relationship to the community that qualifies the leadership role.

Leadership through culture

Culture has a strong presence in Indigenous leadership literature, especially in how it serves to foster relationships (Verbos and Humphries, 2014). Culture is seen to teach relations to self, to community, to ancestors, to future generations, and to the environment (Leon, 2012). Cultural values can also be explored as a way of developing self-awareness and to gain an understanding of how such values inform thoughts and actions (Lee Brown in Leon, 2012). In presenting a Maori perspective on relational leadership, Henry and Wolfgramm (2018) argue for the importance of considering both culture and context as forces that influence the dynamics of relational leadership. Thus, leadership understood in this way involves collective culture and relationality *as well as* individuals accepting the gifts and the responsibility within that culture as a way of honoring those relations.

Culture is also important for leadership in that it links the present to the past and enables the sourcing of ancient wisdom for the present moment. The strong emphasis on culture and knowledge of the past means that Elders have a prominent leadership role in many Indigenous societies. In Yup'ik culture, Elders are highly respected as storytellers and carriers of practical knowledge for how to live "a good life" (Fienup-Riordan, 2005: p. 12). According to Kawagly et al. (1998, p. 140), Yup'ik community Elders are seen as "the repositories of traditional knowledge and they see it as their responsibility to educate the younger members." The idea of looking back in order to go forward is central to many Indigenous cultures, including the Yup'ik. In the Igiugig Village Climate Change Adaptation Assessment Plan, a community Elder is quoted, saying: "The grandpa's and

grandma's spoke to us, what we got coming behind us…we can remember and we could pass it on, what's *coming* behind us" (emphasis in original) (Igiugig Village Council, 2020). Similar notions are found among the Potawatomi of Turtle Island, asserting that "The further backward you can look the further forward you can see" (Shawanda and Wesley-Esquimaux, 2010: p. 22), as well as the Maori of Aotearoa (New Zealand) with the concept of *Ka mura, Ka muri* (walking backward into the future) (Ruwhiu and Elkin, 2016: p. 318).

These ideas and ideals are not only things of the past but have important implications for how leadership unfolds. Summarizing the various cultured components of the Maori leadership system, Ruwhiu and Elkin (2016, p. 311) describe it as "derived from cultural criteria that are bound to the norms, protocols, cultural traditions, kinship systems, economics, politics, and social processes that still remain central features of life in Maori communities and organizations today." Thus, the individual leader is closely governed by the cultural values and structures in place within the community.

Leadership through process

Despite the importance of individual leaders, many Indigenous societies across the Americas are characterized by a distributed form of leadership, where any individual leader is in close collaboration with other segments of society and where leadership positions are subject to change between individuals and groups over time. In traditional Blackfoot society, for instance, leadership positions were transferred between individuals and families, and any one leader was accountable to influential governing groups, called "societies," as well as the tribe as a whole (Gladstone and Pepion, 2017). This meant that "A tribal chief was more a facilitator than a manager" (Gladstone and Pepion, 2017: p. 576) and was a leader only by the consent of the people. In the context of Comanche society, Harris and Wasilewski (2004, p. 493) explain how "Generosity is the most highly valued human quality. The basic principle is to keep everything moving, to keep everything in circulation." This acceptance of and engagement with change also translates into how leadership is understood and performed. According to Mohawk scholar Alfred (2009, p. 46), "the essence of [Indigenous] leadership is the governance of change." In this perspective, focus naturally falls on the process of governing change rather than any one individual engaged in such governance.

The process of governing change is also central to Yup'ik leadership practice, which is especially visible in the emphasis on collective decision-making. While traditionally, village leadership was often spearheaded by an individual or a group of Elders, any leadership decision was finalized only after deliberation with the whole community in the *qasgi* (the communal men's house) (Fienup-Riordan, 2005). These decision-making processes were characterized by community members' personal experiences and the community's moral code and deliberation generally continued until the village was "of one mind" (Reedy et al., 2020: p. 6). In contemporary Yup'ik society, the process of collective decision-making based upon consensus is still prevalent, with important implications for sustainability and well-being (Rasmus et al., 2019). This attention to the process of change is thus important for understanding Indigenous leadership.

Leadership through integration

The above insights bring to the forefront the question of how to view the relationship between individuals and collectives in Indigenous leadership theorizing. Speaking to the assumed separation between individuals and collectives in "Western" perspectives on leadership, Pidgeon (2012, p. 147) writes, "What is often missing from mainstream conversations about leadership is an

acknowledgement of the inherent philosophical, epistemological, and cultural differences in *how relationships work* within Indigenous leadership. (…) Leadership, from an Indigenous perspective, is, in fact, a communal activity embedded within a particular context" (emphasis in original). Thus, the individual and the collective are integrated into a whole. Importantly, however, this integration does not erase the individual or the diversity of expressions. Writing about the fight for sovereignty among the Yupitt Nation during the 1980s, Fienup-Riordan (1992, pp. 79–80) explains: "Yup'ik ideology as it relates to political activity has two fundamental features that help to explain their ability to respect diversity while working for unity: (1) people's duty to pursue the path they are taught, and (2) their need to work with one mind."

This "both-and" stance is not unique to the Yup'ik people. Referencing the legal struggles of First Nations in Canada, Chickasaw scholar Henderson (2008, p. 37) states that "Under Aboriginal legal traditions and treaties, individual and group rights are neither separate nor in conflict; our individuality depends on our collective heritage and identity." Exploring adaptive and transformative capacity among the Guna in Panama, Apgar et al. (2015) found that such capacity relies on this integration of the individual with the collective. In practice, such an integration consists of both "contributing as a member of the collective to show solidarity," and "behaving as a unique individual to leverage differences in the collective through the dialogical processes" (Apgar et al., 2015: p. 5). Promoting individuality as *performed within the collective field* enables individuals to share their unique skill and knowledge toward the greater good. Reflecting on ways forward for Yup'ik sovereignty efforts, Fienup-Riordan (1992) suggests that it is from respecting diversity that unity may arise.

Thus, this fourth analytical lens sheds light on how we might hold both the individual and the collective in view when assessing and supporting leadership for sustainability transformations. How leadership in Igiugig relates to the four analytical lenses will be explored in the results section below. First, however, a few words on the context, relations, and process of the empirical research presented in this study.

Methods: context, relations, and process

Context

Igiugig is a rural community located at the convergence of Yup'ik, Alutiiq, and Dena'ina Athabascan traditional homelands in southwestern Alaska (see Figure 1). Igiugig is small with approximately 70-year round residents, most of whom identify as Yup'ik Alaska Natives.

Igiugig can be seen as an example of sustainability transformations in the making. Transformations are emergent phenomena that defy any set definition (Feola, 2015; Patterson et al., 2017; Salomaa and Juhola, 2020). However, for the purpose of this study and informed by the context of the community of Igiugig, I take sustainability transformations to mean radical societal shifts that move systems, structures, and relationships toward enhanced sustainability, characterized by equity and justice among humans and nonhumans. By deliberate transformations toward sustainability (O'Brien, 2012), I refer to conscious and purposeful efforts toward initiating and engaging with such shifts in alignment with the above values.

In Igiugig, transformations have come about through deliberate efforts to decolonize and "take back" community systems by shifting them toward enhanced autonomy and self-sufficiency in alignment with the values of self-determination and cultural integrity. These efforts are visible through community projects, from energy and food security to economic development and cultural revitalization. From being characterized by rigidity and fragility, these community systems are being transformed into resilient and adaptive systems that support the sustainability goals of the

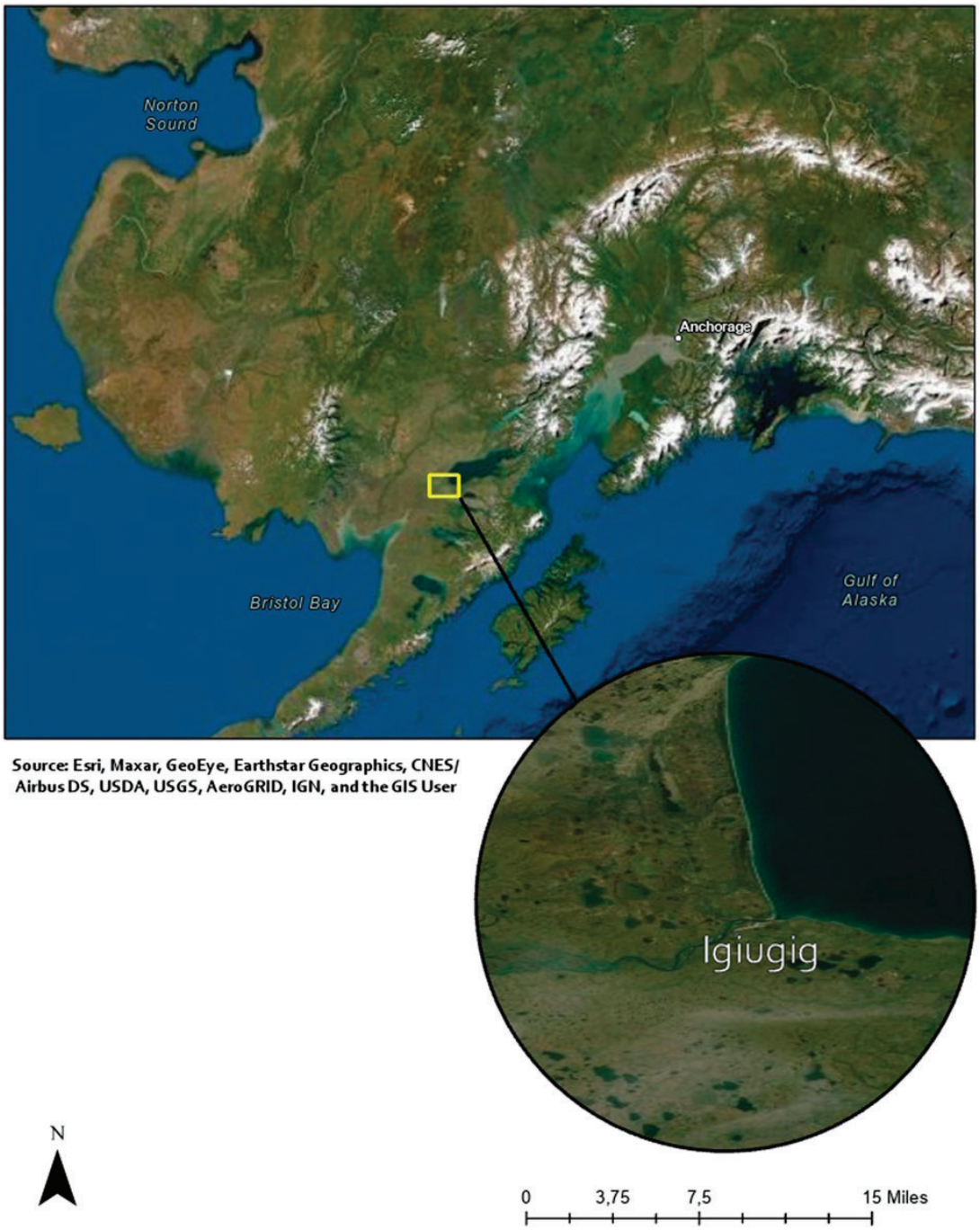

Figure 1. Map of Igiugig, Alaska.

community (see Gram-Hanssen (2012) for a description of some of these efforts). The community define their work as community development that keeps them "propelling forward" (Igiugig Village Council, n. d). In the context of rural Alaska, however, where many communities struggle with a host of environmental and socioeconomic challenges (Ayunerak et al., 2014; Gram-Hanssen, 2018; Jacobs et al., 2018; Loring et al., 2016; Richter-Menge et al., 2019), these efforts can be seen as transformational in the sense that they all together change what it means to be a rural Alaskan community in the 21st century.

Relations

I first learned about Igiugig ten years ago, while researching the involvement of youth in community sustainability in rural Alaska. Intrigued by the community's approaches and results, I contacted the Village Council asking for permission to visit and learn about their efforts. The initial visit turned into several more, and during the past decade, these visits have resulted in different research collaborations (Gram-Hanssen, 2019, 2018, 2012). By inviting me and my questions into their community, community members have expressed an interest in reflecting together on their community work, hoping that more exposure of their efforts and results will be of benefit to them as well as other communities in the region.

Throughout our relationship, my approach to the community has always been that of a student learning from an insightful teacher. The people of Igiugig are the experts on their community and on issues of community sustainability in their unique context. Yet, although a student, I am no passive observer but impact the people and the place in various ways. When visiting, I take active part in community life, from cleaning fish on the beach to assisting with administrative tasks in the Village Council office. When doing interviews with community members, I am aware that my questions invite reflection and that my impact on the community is not necessarily limited to the few weeks and months I visit but may extend beyond what I can imagine and what I plan for. How I present and discuss what has been shared with me also might impact community members directly or indirectly through how others perceive of them and how they perceive of themselves, both of which can have very real consequences. All of these issues are exacerbated by the fact that I am a white academic representing a European educational institution, which creates both assumed and experienced power differences between the community members and myself.

Research is not a benign activity, far from it. In an Indigenous context, research has long been a synonym for white society exploiting Indigenous knowledge while undermining the legitimacy of Indigenous worldviews and lifeways (Smith, 2012), to the extent that "to be researched is to be colonized" (Tuck, 2013: p. 368). While most contemporary research with Indigenous communities aims at benefiting those communities, the lack of reflexivity of the researcher and the use of top-down approaches and methods often results in the opposite (Tuck, 2013; Wilson, 2008). Indigenous and non-Indigenous scholars alike are increasingly recognizing that "all inquiry is both political and moral" (Denzin et al., 2008: p. 2) and pointing to the need for a decolonizing research agenda (Smith, 2012). Such an agenda aims not only to "cause no harm" (Cochran et al., 2008: p. 22), but to aid in the process of transforming exploitative and oppressive relations among Indigenous and non-Indigenous individuals and societies (Snow et al., 2016). Research has the power to do great damage, but research also has the potential to further ongoing struggles for freedom and to contribute to insights that may lead to shifts in thinking and acting among all parties involved (Smith, 2012). In an Indigenous context, this must include a shift toward a decolonized reality. Besides wanting to contribute to certain fields of study and societal issues, it is my explicit aim for my involvement with the community of Igiugig to be beneficial to their efforts toward sustainability, self-determination, and decolonization, now and in years to come.

I have responded to the inherent risks associated with doing research in various ways, including by using methods that allow for active participation, grounding the research in community members' perspectives and needs, as well as inviting community members to review and comment on the written output. I work qualitatively with community member narratives as the foundation for answering my research questions, aiming to create a process in which their voices and epistemologies can take center stage (Smith, 2012). As a non-Indigenous researcher, I aim to engage respectfully with community members' understandings and ideas, well aware that they go through

several translation processes in my attempt to make sense of them and present them in writing. In this regard, I am mindful of the risks involved when analyzing what are largely Yup'ik concepts and values using "Western" frameworks and logics (Todd, 2016) and instead aim to let community member insights "work on me" and my understanding of sustainability transformations (Gram-Hanssen et al., Under review). Yet, learning how to decolonize my research practice and our relationship is an ongoing process. I am grateful to the community for being patient with me and agreeing to be part of this work, however imperfect it may be.

Process

The research drawn from in this study is based on two visits to the community in summer and fall of 2017. While up until that point, my main inquiries had been focused on *what* the community is doing, I now wished to engage with the questions of *how* they do it. Wishing for their voices and perspectives to form the foundation of the research, I asked community members to share their perspectives on how change comes about in their community. Participants were recruited through word of mouth, and all community members over the age of 18 were invited to participate. Over the course of four weeks, 42 interviews were conducted with 29 community members, with several community members interviewed twice. Twenty women and nine men, ranging between 18 and 60 years of age, were interviewed. The first 14 interviews were semi-structured and open-ended qualitative interviews that focused on significant social or environmental changes to the community and the drivers of these changes. Participants were also asked to reflect on what possible future changes they could envision and how such changes might affect the community in years to come.

The second round of interviewing happened four months later and included 28 interviews. These interviews were conducted as part of a Q-methodology research process, aimed at identifying a handful of distinct opinions on the topic of community change. Q-methodology is a mixed method that makes use of a statistical factor analysis in order to group individual opinions into a handful of distinct opinion types (Watts and Stenner, 2005). In this case, participants were presented with 38 statements derived from the first round of interviews, expressing different subjective perspectives on how change comes about in the community. Participants were asked to rank these statements according to their level of agreement or disagreement. After ranking the statements, participants were interviewed about their ranking and asked to explain their interpretation of some of the statements. All interviews were recorded, transcribed, and coded using NVivo12.

Through the subsequent factor analysis, I identified three opinion types: focusing on individual agency, cultural heritage, and collective decision-making, respectively (Gram-Hanssen, 2019). While the notion of leadership was mentioned most explicitly among the people adhering to the first opinion type, leadership was a reoccurring theme throughout all interviews. Despite not being the main focus of our collaboration, leadership thus arose as a way to frame the changes happening in the community. At a recent (online) community gathering, in which I presented the results of our collaboration thus far, community members expressed interest in pursuing the leadership lens further. In the analysis below, I draw on quotes that speak to different understandings and expressions of leadership. While the first three community scenes predominantly draw inspiration from the three perspectives identified in the earlier study (Gram-Hanssen, 2019), the fourth community scene takes an integrative perspective that holds all three together for a deeper understanding of leadership in the community.

I have chosen a narrative style for the analysis where quotes from community members are woven together to create a coherent story rather than presented as isolated "observations." This choice arises from a wish to present more than "data" by giving an embodied experience of a place and a group of

people (Veland et al., 2018). While quotes are taken from one-on-one interviews with Igiugig community members,[4] the events and the circumstances of interactions presented in the scenes are fictional to fit the narrative style. In order to ensure anonymity of the research participants, the characteristics and activities of individuals portrayed are fictional but reflect the lifeways of the inhabitants of Igiugig. The only participants whose characteristics are not fictional are the Village Council President and her late father. This choice was done in collaboration with the Village Council President and was made due to the importance of disclosing certain aspects of their positions and family history for the purpose of understanding their leadership roles. I have still chosen to keep their names anonymous, however, to keep consistency throughout the narratives.

Analysis: enacting sustainability transformations

In this part of the study, I present different understandings of leadership as expressed in the interviews with community members, structured around four community scenes that correspond to the four analytical lenses: the individual leader, leadership through culture, leadership through process, and leadership through integration. At the end of the analysis, I lift up insights from the four community scenes to help articulate a comprehensive understanding of leadership as it is enacted in Igiugig.

Scene one: the airport building—the individual leader. I step off the ten-person bush plane where I spent the past one and a half hours flying from Anchorage to Igiugig in southwestern Alaska. I am in a small, rural village off the road system, located where Lake Iliamna is "swallowed" by the Kvichak River. It is early July and the small airport building is buzzing with life. The other passengers on the plane, sport fishermen from all over the world, here to experience the phenomenal sockeye salmon run, are greeted by their guides and soon rush off toward the river. In the summer months, the community grows from 70 to 200 inhabitants, largely driven by sport fishing. I am here to talk to Igiugig residents about transformational change and the kind of leadership that brings it about.

Igiugig has been in the news lately due to its sustainability work, especially in regard to renewable energy. *"I get asked for more energy related things than anything else that I've ever done,"* says the Village Council President, as we sit in her office, paperwork stacked high on her desk. She spends much of her time applying for and managing community grants, from wind turbines to culture camps. I am aware that she has received several awards in recognition of her leadership. From the outside, it looks like Igiugig might be a one-woman show and that what is enabling this community to become increasingly sustainable is the presence of certain individuals with extraordinary leadership skills.

My conversations with other community members reaffirm the sense of the importance of the Village Council President. When asked about the importance of passionate individuals for driving change, a community member explains, *"When they want something they go and get it. [The Village Council President] is a good example!"* Another community member similarly refers to the Village Council President when she reflects on the importance of having a community vision to direct future change: *"The vision for the future is with the people that are playing the cards now, and that is [the Village Council President]. (…) [She] has a drive like nobody else has for our village."*

The Village Council President is not the first prominent leader of Igiugig. A community member who recently moved to Igiugig tells about the previous administrator who moved to Igiugig in the 70s and gradually took on a leadership role in the community. *"[F]rom the stories I hear, [Igiugig] was just, you know, a village like most other villages in the area. Nothing really to stand out about it until [the previous administrator] came here and I think his passion and his leadership qualities*

[changed the village]," he says, adding, *"You get an individual that is a good leader and inspires people, so many things can fall into place after that. And people will rise up and live up to their potential if they have somebody good to lead them."*

This sentiment is exemplified by another community member, who tells how the previous administrator helped give her direction and supported her in getting a job, which in turn enabled her to qualify for a subsidized home. *"He told me in which direction I needed to go (…) So now I have my own house!"* A similar story is shared by a community member who came to Igiugig as a teenager in order to live with relatives and go to school in the community. He says, *"I came down here and my outlook on education changed, because of [the previous administrator]. He was a really good mentor for me."* Now, this community member holds a bachelor's degree in engineering and works with the community-based environmental consultant company. I quickly learn that the previous administrator is the late father of the Village Council President, and it seems as if she is carrying the leadership legacy of her father forward. In fact, she came back to the village after graduating from college in order to take over the work of her father, who had recently passed away. When asked about this, she explains: *"Some people had said how the village would crumble without my dad there, and I was like, no way! So initially it was to honor his name."*

It is lunchtime and the airport building is emptying out. Based on my conversations thus far, I have gotten insights into a line of strong community leaders who are visionary and working from a sense of responsibility for their community. This aligns with the first analytical lens, the individual leader, that emphasizes the important of individuals with certain characteristics and skills for leading change. Yet, as some of the community members hint at, the real "magic" may be in the relationship between these leaders and the rest of the community. The Village Council President is after all not working in isolation but is embedded within a community context. What, then, are the practices leaders engage in to be able to lead the community toward sustainability?

Scene two: the smokehouse—leadership through culture. I leave the airport building behind and head down the dirt road. I walk past a few fallen down wooden structures; I have been told that this is one of the oldest settlements in the Lake Iliamna area with the ancestors of Igiugig residents having traditionally used it as a fish camp before they relocated here permanently in the early 1900s as part of the semi-forced settlement process. Subsistence fishing is still of high importance to the people of Igiugig, and during summer, everyone is down by the river where salmon are split, cleaned, and thrown in a brine before they get hung to dry on wooden racks. After a few hours in the sun, the fish are transferred to the smokehouse where they hang for three days in the smoke from a smoldering fire, kept going day and night with small pieces of driftwood from the beach.

I reach one of the smokehouses where two women are in the process of hanging up their fish. I start talking with one of the women about the importance of practicing cultural activities, such as fishing. The conversation quickly returns to issues of community change, but rather than focusing on any one individual, I get a sense that culture and cultural practices play a role in driving change. *"Well, I've seen communities where the young people are not participating in their traditional dance and language and they get lost and then they get into drugs and alcohol and suicide. (…) When they're more involved they're busy, they don't have time to think like that.*" This is not only about staying out of trouble but also about knowing who you are. The woman explains, *"[The knowledge of the Elders is] the whole spectrum of our whole being and identity."* The other women supports this perspective, adding, *"I think if you speak your own language it connects you more to your ties of where you're from and [gives you] enough confidence and you can feel strong in yourself and [have] faith that you can do it."*

As I talk to more community members on their way to and from the beach, the importance of knowing and speaking the Yup'ik language for both personal and community health comes up in different ways. A community member who is involved in the community's efforts to revive the Yup'ik language shares that learning the language and the dancing makes him feel good and helps him grow as a person. *"[I]t helped me a lot, like I felt lost a while ago and just learning my language and, I don't know, it keeps us connected I guess."* To him, such efforts are the true reasons behind Igiugig's transformations. This is not just about individual health but has implications for larger-scale processes in the community and beyond. In my conversation with the Village Council President earlier in the day, she had reflected on the broader implications of the community's Yup'ik language program, arguing that speaking Yup'ik directly relates to the community's decolonization efforts. In this perspective, language revitalization is a tool for deliberately transforming community systems.

Despite the importance placed on Yup'ik culture, some community members object to the idea that positive change is dependent on such practices. For instance, one community member argues that language revitalization is one source of positive change but emphasizes the importance of respecting people's differences, including different cultural backgrounds and opinions. She reflects, *"Everyone has a different opinion. And it's about how you go about compensating that difference. Are you gonna throw a tantrum or are you gonna talk it out and figure something out that'll please everybody?"*

Clouds have moved in front of the sun and the bugs are out, chasing me away from my comfortable spot outside the smokehouse. The afternoon's conversations invite me to reevaluate my earlier conclusions. Rather than leadership being about individuals acting on their free will, culture and cultural practices take center stage. Leadership that enhances the well-being of community members seems to emerge by way of engaging with Yup'ik cultural practices, such as language or traditional activities. This resonates with the second analytical lens, leadership through culture, in which leadership arises through the engagement of individuals in certain cultural practices, and through the push and pull of such interactions. Yet, not everyone engages in Yup'ik cultural practices or identifies as Yup'ik. Reflecting on my conversations, I wonder whether seeing leadership as limited to certain practices overlooks the dynamic nature of change processes and leadership in this context. Is there something more fundamental at play?

Scene three: the community fundraiser—leadership through process. It is evening and I have been invited to join a community fundraiser at the school. The children have prepared food that they sell to raise funds for an upcoming school trip to Washington D.C. The whole community is there, kids running around, and everyone enjoying the food and sharing stories. I approach the Village Council President and ask her to reflect on some of the perspectives I have heard so far. She rejects the thesis that Igiugig's transformations are due to her or her father, focusing instead on what guides her work. *"[T]he main drivers [of change],"* she says, *"[is] what the people want."* She tells about a community visioning process they did in the 90s, involving everyone in the community. *"[So], when I stepped in in 2008 to be the administrator, I had a roadmap of all these projects I could go after that had 100% community support, because it was the community's plan."* Speaking of the community greenhouse, she says, *"it was a vision, it was a dream, everybody thought it was a good idea. We went after it and it's working, and it is improving the quality of life where we live"* (Igiugig Village Council President, 2017). Thus, the community moves from idea to practice through collective leadership.

Several other community members identify the visioning process and the involvement of community members in decision-making as an important reason for Igiugig's success. To one of the

high school students, who was a baby when the visioning process took place, it is important to include all community members in such processes. *"I think it's good to ask the Elders first, when we're thinking about change and stuff like that. And it's good to ask the kids, cause they're gonna be the ones who are gonna look after [everything] after we're gone."* This indicates an awareness of both past and future in day-to-day decision-making. Rather than any one individual or decision, the practice of collective decision-making is highlighted as a driver of change.

The sense of change being enacted through the community as a whole extends beyond the visioning process. I learn that all major decisions in Igiugig are based on consensus. A community member explains the logic behind this process, saying, *"We do things together. I've seen it quite often where there's something that we started moving towards and people weren't comfortable and so you backed off. And then you worked it through and it was kinda like, 'so, let's make this so this is positive for everyone.'"* Things do not always go according to plan, however, and several community members emphasize the importance of being adaptive and making things work, even if it might look different than originally envisioned. A community member explains, *"we do like to plan two years down the road. But sometimes, you know, we'll have a plan in place then we get to a certain place and we're like, 'oh this might not work,' and so we'll have to improvise. So across the board, I think we're pretty good at handling whatever comes around, because we've thought about it for the future but we usually have back up plans or, you know, someone is able to come up with a quick solution."*

The crowd is thinning out and I walk toward my lodging. Based on this evening's conversations, leadership hinges on the community coming together to create the possibilities for positive change. Transformative leadership does not rely on any one person or type of knowledge but emerges in the flow of day-to-day practice centered around collective decision-making and coming together as a community. This relates to the third analytical lens, leadership through process, where actors move to the background and process takes center stage. Yet, if leadership is processual and emergent and not to be ascribed to any one individual, what then is the role of distinct "leaders," such as the Village Council President? Is there a way in which I can take all perspectives and insights of community members into account, recognizing that all hold partial truths and that individuals, relations, and process all matter for how transformations come to be enacted?

Scene four: the river—leadership through integration. It is morning and I am scheduled to fly back to Anchorage in a few hours, weather permitting. Even though the village is remote in terms of physical distance from the urban centers, Igiugig feels incredibly connected. This is partially due to the influx of people in the summer, but more importantly, it is due to the outlook of community members who exhibit a deep connection to this particular land, its people, and history, as well as a keen awareness of what goes on outside the community.

I head down to the mouth of the river. A woman is standing at a wooden table deliberately placed on the waterline, enabling her to stand on land while throwing fish guts back into the lake. She is well underway with today's fish processing. We start speaking about community visioning and the importance of community members being on the same page. She reflects, *"Well, sometimes we can do things without the full vision, you know. I'm sure a lot of people don't have the vision for what [the Village Council President] has planned, but they can see enough of it to agree and* (…) *help and move it along. So I don't think it's important that everyone has the full vision. But it is important that we all have* (…) *the same trajectory going*." She emphasizes community visioning while also pointing to the individual vision of certain community leaders, highlighting the importance of aligning one with the other.

Two more women join us at the splitting table. One of them says: *"[The village leadership is] not perfect but it's pretty close actually.* (…) *I think that somebody like [the Village Council President]'s vision for the future and the way she wants to steer things are really right on. I mean they're in tune with what the community wants and when she applies for something it's usually not something that just she wants really bad, it's something that everyone wants to get on board with her about. So I find that incredible leadership, I mean really good."* I ask whether there are ever conflicts about issues of community development, and all three women laugh, confirming that there are. The third woman, who recently moved to Igiugig, says, *"The community as a whole is pretty like-minded. You know, everybody's got different opinions and stuff, but (…) from the youngest to the oldest, all get together and like to discuss everyone's futures."* The other woman clarifies, *"Here in this village, even if we really don't care for each other a lot of times, we'll all help, it does not matter who it is, everybody's gonna help everybody and nobody's gonna starve."*

I join one of the women in collecting more driftwood for the smokehouse, walking along the shore of Lake Iliamna. I ask her to help me understand the relationship between community leaders and the community at large. *"[Traditionally,]"* she explains, *"[leadership] was based on really working hard and people [sharing resources]. The people who were usually in some type of leadership were the ones who did lots and shared lots with everybody else."* According to her, the influence of "Western' hierarchical leadership has changed this somewhat, although Igiugig is trying to uphold the Yup'ik values. "*The act of trying to get some of that stuff back really makes this village different. This village has always been (…) a village that progressively move forward, and actually did a lot of the older styles of doing things, like helping everybody else."* When asked what defines leadership in this context, she replies without hesitation, *"It's a way of being good to everybody with whatever you're doing."*

When we come back to the splitting table, another community member has pulled up on the beach in his skiff, unloading more salmon for the women to process. I ask him about the thesis that passionate individuals drive community change. He corrects me, adding: *"passionate individuals* with knowledge *drive community change."* To him, it is crucial that whoever is in a leadership position is also embedded within the community and works to further the values of community members. Only then can leaders "be good to everybody" and ensure that change is just and equitable.

Two young girls on a four-wheeler have come to inform me that my plane has arrived. One of the girls is wearing a sweatshirt with the high school tagline printed on it: "small but mighty." The statement reminds me of a speech the Village Council President gave recently at a Native Issues Forum meeting, focusing on the current political and economic challenges of Alaska. In the speech, she highlighted three key points for Alaska Native communities in the time ahead: keeping people and values at the center, working for tribal sovereignty and self-determination, and electing the right leadership to advance the vision of sovereignty. While it might be tempting for Alaska Native communities to stay isolated in times of political upheaval, she argued that the exact opposite is needed, emphasizing that, *"Alaska needs all of our help. And this is our home and we're the hosts. And we need to be not only at the table, we need to be setting the table.* (…) *We're thinking of progress for the next ten thousand years. They need our stories, they need our vision, and they need our helping hands"* (Igiugig Village Council President, 2019).

On the way back to the airport building, my thoughts circle around the nature of leadership in this community. While the sense of leadership as process remains, the perspectives shared by community members this morning insist on bringing the individual back in. Leadership then seems to be a matter of integration, with transformational change enacted in a continuous *process* involving *individuals* acting in *relation* to the group.

Integrating duality: individual-collective simultaneity. Throughout the four community scenes above, we gain insights into the different ways in which leadership is enacted in Igiugig. For a comprehensive understanding of how transformational change happens in this community, it seems we need to be able to hold both the collective (in its broadest sense) and the individual in view. This implies recognizing that the individual and the collective are impossible to separate and that what each individual does matters for how the collective develops and how transformations are able to unfold. While some community members are very important and individual drive and initiative matters a great deal for the positive changes happening in Igiugig, there is an acute sense that these individuals cannot be separated out from the community. Rather, individuals seem to operate within a collective field, defined by community values and culture and influenced by both human and nonhuman phenomena (including past and future generations). What emerges then is a process of *"individual-collective simultaneity,"* where the act of relating becomes a defining feature of both the individual and the collective.

On a practical level, leadership in Igiugig seems to be about fostering a culture of alignment between individual values and goals and that of the group or community while also ensuring that there is space for individual expressions within that larger field. Recognizing that individuals and the collective develop in relation to (or rather, within) one another, those entrusted with leadership must care for both in a continuous dance. To simultaneously care for individuals and collectives is challenging in the context of non-Indigenous society, where the view of leadership is based on an understanding of phenomena as isolated and inherently separate. Speaking to this challenge, Mi'kmaq scholar Doyle-Bedwell (2012, p. 193) reflects, "Our cultural values demand we work for the whole within a dominant system that focuses only on the individual. How do we negotiate this cultural conflict and develop skills to operate in both worlds?" In Igiugig, part of their transformational work is negotiating this apparent conflict by bridging worldviews and continuously translating an ontology of isolation into one of relation, and vice versa, honoring the partial truths existing in both. Being aware of both individuals and the collective, the community works to enable a process where the individual and the collective can contribute positively toward each other's becoming. This sentiment is shared among many Indigenous cultures, across Turtle Island and beyond, summarized well be Yakama scholar Jacob (2012, p. 179) when she reflects that "strong, communally oriented individuals make the strongest collectivity." Thus, insights from Indigenous leadership and from the community of Igiugig suggest that the individual and the collective are inherently connected, or more accurately, they were never separate to begin with, and that this deep connection is a key feature of sustainability transformations.

Discussion: bridging paradigms

The insights presented above as to the relational nature of leadership are to some extent mirrored in the part of "mainstream" leadership research engaged with leadership "in the plural" (Denis et al., 2012), presented in the introduction. Especially those theories that focus on practice and process resonate with an Indigenous view on leadership. According to Raelin (2016a, p. 149), a practice perspective views leadership as "a condition that is purely collective rather than a summation of individual acts." Rather than the relationship between "leader" and "followers," leadership is a result of collective action that emerges through discursive and material engagement over time (Raelin, 2016b). Thus, while individuals are still present in leadership, they can no longer be seen as "containers" of leadership (Denis et al., 2012).

While there are some perceived tensions between actor-based and process-based conceptualizations of leadership, as highlighted by Simpson (2016), some scholars within "mainstream" leadership research are attempting to incorporate and expand the role of individuals within collective

and processual understandings of leadership. For instance, instead of focusing on leadership as held either by individuals or collectives, Hernandez et al. (2011) suggest focusing in on the loci and the mechanisms of leadership in order to address the sources of leadership *as well as* how it is distributed. They suggest five loci (leader, context, followers, collectives, and dyads) as well as four mechanisms (affect, cognition, behavior, and traits) that together help to develop a more comprehensive and integrative understanding of the leadership phenomenon. In a more recent contribution, Jones (2019) draws on pragmatist philosophy and developmental psychology to explore the role of the individual leader within a practice view on leadership. As with Indigenous leadership, Jones (2019, p. 563) argues that culture is central when attempting to understand the role of leaders in transformations, suggesting that "people do not become transformational leaders despite their social environment; but because of it." Taking these notions to sustainability transformations, Kuenkel (2019, p. 49) suggests that leadership be seen as "an individual and simultaneously a joint activity aimed at bringing forth reality and creating new circumstances at various levels, from individual to organizations to societal change." As she concludes, "this brings the relational aspect of leading into the foreground."

These points of convergence between Indigenous and non-Indigenous approaches to leadership and the potentials for transformation point to ways in which so-called 'Western' and Indigenous ontologies might speak to each other. "Ontological bridge building" efforts matter for how we are able to approach the wicked problems of the 21st century in ways that are equitable and sensitive to different ways of knowing and being in the world (Johnson et al., 2016; Rout and Reid, 2020). This is especially important in fields such as leadership research, where theorizing and conceptualizations directly and indirectly inform what paths will be taken by organizations, communities, and nations in attempts to move toward sustainability. As has been pointed out by numerous scholars, the engagement with other ways of being that can inform humanity's move toward equitable and sustainable futures is something Indigenous knowledge and perspectives can greatly contribute toward (Burns, 2015; Edwards et al., 2013; Gould et al., 2019; Johnson et al., 2016). In their meta-theoretical review of wisdom and its implications for environmental leadership, Edwards et al. (2013, p. 27) find that much sustainability research share several core meta-theoretical lenses with Indigenous sciences. The authors argue that taken together, these can contribute toward a globally engaged understanding of wisdom and leadership. Cajete (2016, p. 364) points out that, done well, "Such an exploration may also lead to the creation of new paradigms that can move us collectively and creatively beyond current paradigms of individualistic leadership to more communal and culturally relevant forms of Indigenous leadership."

The potential for bridging goes beyond leadership research and is especially relevant in research and theorizing on sustainability transformations. For instance, exploring transformational sustainability interventions, Abson et al. (2017) identify reconnecting humans with nature and re-thinking knowledge production as central leverage points for sustainability transformation. Despite the obvious points of convergence with Indigenous worldviews and teachings, there is no reference in this work to such people groups or to Indigenous scholars making similar claims. This silence is symptomatic of much academic literature (Todd, 2016; Watts, 2013), including the literature on sustainability transformations. This is problematic, especially given the normative goal of much transformation research to further equitable and just change that takes into account other ways of knowing and being. Importantly, however, "ontological bridge building," or "braiding work" (Elwood et al., 2019), needs to be grounded in respectful relationship-building and be sensitive to the pitfalls of exploiting Indigenous knowledge and perpetuating colonial systems of oppression (Chandler and Reid, 2018; Chapman and Schott, 2020; Whyte et al., 2018). Thus, the manner in which this work is done matters greatly for the outcomes generated (Gram-Hanssen et al., Under review).

For leadership research to contribute toward our understanding of how transformational change is enacted and the role of leadership in this process, building bridges and caring for relationships are important components for future research and practice. Such processes invite reflection on assumptions as to how change happens, what agency for transformation is, and how it is activated (O'Brien, 2020). Unangaŝ scholar Tuck (2013, p. 370) warns that "without making how we think change happens explicit, we may inadvertently rely on theories of change that locate power entirely outside our communities." While this is especially problematic in an Indigenous context, due to the colonial assumptions of power within much social theorizing (Tuck, 2013), in Indigenous and non-Indigenous settings alike such assumptions risk leading to self-fulfilling prophesies of society's inability to enact radical and equitable change. The interrelated nature of individuals and collectives proposed in this study will therefore be important to consider and explore further for the purpose of theorizing social change, and especially in the context of enacting and supporting sustainability transformations.

Conclusion

In this study, I have engaged with different understandings and enactments of leadership in processes of deliberate transformations in the Yup'ik community of Igiugig, Alaska. Rather than leadership being *either* an individual's ability to act *or* a process arising through collective action, I have conceptualized leadership in processes of transformational community change as something that is inherently collective and emergent while *simultaneously* being dependent on individuals "showing up" in everyday situations and contributing with their unique skills and perspectives toward the greater good—a process of "individual-collective simultaneity." I have shown how a view of leadership grounded in a process-oriented and relational ontology, such as many Indigenous ontologies, enables us to hold the collective and the individual together, acknowledging that they are emergent and part of each other's becoming. Leadership in this context is about performing one's individuality in relation to the collective. What sets certain individuals apart as leading transformational change seems to both be an acceptance of the responsibility to lead as well as an awareness of how relations matter for bringing about just and desirable change.

Drawing on decades of research on who leaders are and what they do, leadership researchers are uniquely positioned to inquire into the enactment of deliberate transformations toward sustainability. For such inquiries to add substantially to our understanding of transformation and sustainability, however, it will be important to actively engage with the field's ontological assumptions. This is not limited to leadership research but is relevant for all fields and disciplines dealing with the question of how to enact sustainability transformations. Becoming aware of and questioning assumptions about how change is enacted is necessary if we hope to move beyond top-down sustainability. In taking such an engagement serious, an important area for future research is the potential for different ontologies to come together to inform and expand on our assumptions about agency for transformations, with careful consideration to the importance of relationship-building in such processes. While such ontological plurality creates tensions, it may be through holding and working through such creative tensions that we can start to see pathways toward equitable and sustainable futures.

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Notes

1. While all Indigenous cultures have their own distinct understanding and practice of leadership, I use the term "Indigenous leadership" in recognition that most if not all such understandings differ fundamentally from non-Indigenous conceptualizations of leadership on several fronts (Warner and Grint, 2006), some of which will be engaged with in this study. Exploring any one culture's understanding of leadership in depth, however, is outside the scope of the study.
2. Leaning on the United Nations Declaration on the Rights of Indigenous Peoples (United Nations, 2013), I use the word "Indigenous" to refer to peoples of long settlement and connection to specific lands who have been adversely affected by various forms of colonialism. Recognizing the risk of erasing differences in culture and experience of such peoples, whenever possible I refer to regionally specific terminology, such as Alaska Native or First Nation, as well as specific cultural groups, such as Yup'ik in the case of Igiugig, AK.
3. Turtle Island is an Indigenous name for North America, found in the origin stories of some Indigenous cultures across the continent. The name is used by some Indigenous peoples and allies as a way to reclaim traditional place names (Robinson, 2018). I use Turtle Island here to signify my respect for the first inhabitants of these lands.
4. Two quotes by the Igiugig Village Council President are taken from public talks. These have been referenced accordingly.

References

Abson DJ, Fischer J, Leventon J, et al. (2017) Leverage points for sustainability transformation. *Ambio* 46: 30–39. DOI: 10.1007/s13280-016-0800-y.

Alfred T (2009) *Peace, Power, Righteousness: An Indigenous Manifesto*. 2nd edition. Don Mills, Ont, NY: Oxford University Press.

Apgar MJ, Allen W, Moore K, et al. (2015) Understanding adaptation and transformation through indigenous practice: the case of the Guna of Panama. *Ecology and Society* 20: 45. DOI: 10.5751/ES-07314-200145.

Ayunerak P, Alstrom D, Moses C, et al. (2014) Yup'ik culture and context in SouthWest Alaska: community member perspectives of tradition, social change, and prevention. *American Journal of Community Psychology* 54: 91–99. DOI: 10.1007/s10464-014-9652-4.

Balkundi P and Kilduff M (2005) The ties that lead: a social network approach to leadership. *The Leadership Quarterly* 16: 941–961. DOI: 10.1016/j.leaqua.2005.09.004.

Burns HL (2015) Transformative sustainability pedagogy. *Journal of Transformative Education* 13: 259–276. DOI: 10.1177/1541344615584683.

Cajete GA (2016) Indigenous education and the development of indigenous community leaders. *Leadership* 12: 364–376. DOI: 10.1177/1742715015610412.

Case P, Evans LS, Fabinyi M, et al. (2015) Rethinking environmental leadership: the social construction of leaders and leadership in discourses of ecological crisis, development, and conservation. *Leadership* 11: 396–423. DOI: 10.1177/1742715015577887.

Chandler D and Reid J (2018) 'Being in being': contesting the ontopolitics of indigeneity. *The European Legacy* 23: 251–268. DOI: 10.1080/10848770.2017.1420284.

Chapman JM and Schott S (2020) Knowledge coevolution: generating new understanding through bridging and strengthening distinct knowledge systems and empowering local knowledge holders. *Sustain Science* 15: 931–943. DOI: 10.1007/s11625-020-00781-2.

Cochran PAL, Marshall CA, Garcia-Downing C, et al. (2008) Indigenous ways of knowing: implications for participatory research and community. *American Journal of Public Health* 98: 22–27. DOI: 10.2105/AJPH.2006.093641.

Contractor NS, DeChurch LA, Carson J, et al. (2012) The topology of collective leadership. *The Leadership Quarterly* 23: 994–1011. DOI: 10.1016/j.leaqua.2012.10.010.

Deloria V Jr and Lytle CC (1984) *The Nations Within: The Past and Future of American Indian Sovereignty.* New York: Pantheon Books.

Denis JL, Langley A and Sergi V (2012) Leadership in the plural. *Academy of Management Annals* 6: 211–283. DOI: 10.1080/19416520.2012.667612.

Denzin NK, Lincoln YS and Smith LT (2008) *Handbook of Critical and Indigenous Methodologies*. Los Angeles, CA: SAGE.

Doyle-Bedwell P (2012) And so i return to Rita: Mi'kmaq women, community action, leadership, and resilience, In: Fraser TN and Kenny C (eds) *Living Indigenous Leadership: Native Narratives on Building Strong Communities*. Vancouver: UBC Press, pp. 192–203.

Edwards M, Biloslavo R, Kwaymullina B, et al. (2013) Big picture wisdom: metatheorising ancient, scientific and indigenous wisdom perspectives for global environmental leadership. *Journal of Spirituality, Leadership and Management* 7: 13–32. DOI: 10.15183/slm2013.07.1113.

Elwood J, Andeorri V and Stein S (2019) *Towards Braiding*. Guelph, ON: Musagetes.

Eva N, Wolfram Cox J, Tse HHM, et al. (2019) From competency to conversation: a multi-perspective approach to collective leadership development. *The Leadership Quarterly*: 101346. DOI: 10.1016/j.leaqua.2019.101346. Advance online publication.

Feola G (2015) Societal transformation in response to global environmental change: a review of emerging concepts. *Ambio* 44: 376–390. DOI: 10.1007/s13280-014-0582-z.

Ferdig MA (2007) Sustainability leadership: co-creating a sustainable future. *Journal of Change Management* 7: 25–35. DOI: 10.1080/14697010701233809.

Fienup-Riordan A (2005) *Wise Words of the Yup'Ik People: We Talk to You Because We Love You*. Lincoln, NE: U of Nebraska Press.

Fienup-Riordan A (1992) One mind, many paths: Yup'ik Eskimo efforts to control their future. *Études/Inuit/Studies* 16: 75–83.

Fienup-Riordan A (1990) *Eskimo Essays: Yup'Ik Lives and How We See Them*. New Brunswick, NJ: Rutgers University Press.

Gambrell KM (2016) Lakota women leaders: getting things done quietly. *Leadership* 12: 293–307. DOI: 10.1177/1742715015608234.

Gladstone JS and Pepion DD (2017) Exploring traditional indigenous leadership concepts: a spiritual foundation for blackfeet leadership. *Leadership* 13: 571–589. DOI: 10.1177/1742715016638913.

Gould RK, Pai M, Muraca B, et al. (2019) He 'ike 'ana ia i ka pono (it is a recognizing of the right thing): how one indigenous worldview informs relational values and social values. *Sustainability Science* 14: 1213–1232. DOI: 10.1007/s11625-019-00721-9.

Gram-Hanssen I (2019) The role of flexibility in enabling transformational social change: perspectives from an indigenous community using Q-methodology. *Geoforum* 100: 10–20. DOI: 10.1016/j.geoforum.2019.02.001.

Gram-Hanssen I (2018) Leaving, staying or belonging: exploring the relationship between formal education, youth mobility and community resilience in rural Alaska. *Polar Geography* 41: 1–25. DOI: 10.1080/1088937X.2017.1414083.

Gram-Hanssen I (2012) *Youth Creating Sustainable Communities in Rural alaska*. Fairbanks, Alaska: University of Alaska.

Gram-Hanssen I, Schafenacker N and Bentz J (Under review) Decolonizing transformations through 'right relations'. *Sustainability Science*.

Harris LD and Wasilewski J (2004) Indigeneity, an alternative worldview: four R's (relationship, responsibility, reciprocity, redistribution) vs two P's (power and profit). Sharing the journey towards conscious evolution. *Systems Research and Behavioral Science* 21: 489–503. DOI: 10.1002/sres.631.

Henderson JSY (2008) *Indigenous Diplomacy and the Rights of Peoples - Achieving UN Recognition*. Saskatoon: Purich Publishing.

Henry E and Wolfgramm R (2018) Relational leadership – an indigenous Māori perspective. *Leadership* 14: 203–219. DOI: 10.1177/1742715015616282.

Hernandez M, Eberly MB, Avolio BJ, et al. (2011) The loci and mechanisms of leadership: exploring a more comprehensive view of leadership theory. *The Leadership Quarterly* 22: 1165–1185. DOI: 10.1016/j.leaqua.2011.09.009.

Igiugig Village Council (2020) *Igiugig Village Climate Change Assessment Plan*. Igiugig, AK: Igiugig Village Council.

Igiugig Village Council (n. d.) Village life - village of igiugig Alaska. Available at: http://www.igiugig.com/village-life (accessed 11.25.19).

Igiugig Village Council President (2019) The littelest village that could. In: Native issues forum, Juneau, AK, July 30 2019.

Igiugig Village Council President (2017) Leadership perspectives. In: The Alaska Federation of Natives Convention, Anchorage, AK, 21 October 2017.

Jacob M. M (2012) "We want a lifelong commitment, not just sweet words": native vision for educational healing. In: Fraser TN and Kenny C (eds) *Living Indigenous Leadership: Native Narratives on Building Strong Communities*. Vancouver: UBC Press, pp. 179–191.

Jacobs B, Gallagher M and Heydt N (2018) At the intersection of health and justice: how the health of american indians and Alaska natives is disproportionately affected by disparities in the criminal justice System. *Belmont Law Review* 6: 41–77.

Johnson JT, Howitt R, Cajete G, et al. (2016) Weaving indigenous and sustainability sciences to diversify our methods. *Sustainability Science* 11: 1–11. DOI: 10.1007/s11625-015-0349-x.

Jones TL (2019) A new transformational leadership: a meadian framework for a new way forward. *Leadership* 15: 555–575. DOI: 10.1177/1742715018777341.

Kawagley AO, Norris-Tull D and Norris-Tull RA (1998) The indigenous worldview of Yupiaq culture: its scientific nature and relevance to the practice and teaching of science. *Journal of Research in Science Teaching* 35: 133–144.

Kuenkel P (2019) Global transformation as a collective leadership challenge. In: *Stewarding Sustainability Transformations*. Cham: Springer International Publishing, pp. 43–58. DOI: 10.1007/978-3-030-03691-1_3.

Leon AY (2012) Elder's teachings on leadership: leadership as gift. In: Fraser TN and Kenny C (eds) *Living Indigenous Leadership: Native Narratives on Building Strong Communities*. Vancouver: UBC Press, pp. 48–63.

Little Bear L (2000) Jagged worldviews colliding. In: Battiste M (ed) *Reclaiming Indigenous Voice and Vision*. Vancouver: UBC Press, pp. 77–85.

Liu H and Baker C (2016) White knights: leadership as the heroicisation of whiteness. *Leadership* 12: 420–448. DOI: 10.1177/1742715014565127.

Loring PA, Gerlach SC and Penn, HJ (2016) "Community work" in a climate of adaptation: responding to change in rural Alaska. *Human Ecology* 44: 119–128. DOI: 10.1007/s10745-015-9800-y.

Marshall, J., Coleman, G., Reason, P., et al. (2017) *Leadership for Sustainability: An Action Research Approach*. London: Routledge. DOI: 10.4324/9781351278287.

McLeod YG (2012) Learning to lead kokum style: an intergenerational study of eight first nation women. In: Fraser TN and Kenny C (eds) *Living Indigenous Leadership: Native Narratives on Building Strong Communities*. Vancouver: UBC Press, pp. 17–47.

Meijerink S and Stiller S (2013) What kind of leadership do we need for climate adaptation? A framework for analyzing leadership objectives, functions, and tasks in climate change adaptation. *Environment and Planning C: Government and Policy* 31: 240–256. DOI: 10.1068/c11129.

Moore M-L, Tjornbo O, Enfors E, et al. (2014) Studying the complexity of change: toward an analytical framework for understanding deliberate social-ecological transformations. *Ecology and Society* 19: 54. DOI: 10.5751/ES-06966-190454.

O'Brien K (2020) *You Matter More than You Think: Quantum Social Change in Response to a World in Crisis*. Oslo: AdaptationCONNECTS, cCHANGE, Unpublished manuscript.

O'Brien K (2012) Global environmental change II: from adaptation to deliberate transformation. *Progress in Human Geography* 36: 667–676. DOI: 10.1177/0309132511425767.

Patterson J, Schulz K, Vervoort J, et al. (2017) Exploring the governance and politics of transformations towards sustainability. *Environmental Innovation and Societal Transitions* 24: 1–16. DOI: 10.1016/j.eist.2016.09.001.

Pearce CL, Conger JA and Locke EA (2007) Shared leadership theory. *The Leadership Quarterly* 18: 281–288. DOI: 10.1016/j.leaqua.2007.03.009.

Pesch U (2015) Tracing discursive space: agency and change in sustainability transitions. *Technological Forecasting and Social Change* 90: 379–388. DOI: 10.1016/j.techfore.2014.05.009.

Pidgeon M and (2012)Transformation and indigenous interconnectedness: indigeneity, leadership, and higher education. In: Fraser TN and Kenny C (eds) *Living Indigenous Leadership: Native Narratives on Building Strong Communities*. Vancouver:UBC Press, 136–149.

Raelin JA (2016a) Imagine there are no leaders: reframing leadership as collaborative agency. *Leadership* 12: 131–158. DOI: 10.1177/1742715014558076.

Raelin JA (2016b) Introduction to leadership-as-practice: theory and application. In: Raelin JA (ed) *Leadership-as-Practice: Theory and Application*. New york: Routledge, 1–18.

Rasmus SM, Trickett E, Charles B, et al. (2019) The qasgiq model as an indigenous intervention: Using the cultural logic of contexts to build protective factors for Alaska native suicide and alcohol misuse prevention. *Cultural Diversity and Ethnic Minority Psychology* 25: 44–54. DOI: 10.1037/cdp0000243.

Reedy J, Orr R, Spicer P, et al. (2020) Deliberative democracy and historical perspectives on American Indian/Alaska native political decision-making practices. *Humanities and Social Sciences Communications* 7: 1–11. DOI: 10.1057/s41599-020-0506-4.

Richter-Menge J, Druckenmiller M and Jeffries M (2019) *Arctic Report Card: Update for 2019. Executive Summary, Arctic Report Cards*. Washington, D.C.: National Oceanic and Atmospheric Administration.

Robinson A (2018) Turtle Island. The Canadian Encyclopedia.

Rout M and Reid J (2020) Embracing indigenous metaphors: a new/old way of thinking about sustainability. *Sustain Science* 15: 945–954. DOI: 10.1007/s11625-020-00783-0.

Ruwhiu D and Cone M (2013) Pragmatic leadership: a return to wisdom. *Journal of Management & Organization* 19: 25–43. DOI: 10.1017/jmo.2013.2.

Ruwhiu D and Elkin G (2016) Converging pathways of contemporary leadership: In the footsteps of Māori and servant leadership. *Leadership* 12: 308–323. DOI: 10.1177/1742715015626326.

Salomaa A and Juhola S (2020) How to assess sustainability transformations: a review. *Global Sustainability* 3: e24. DOI: 10.1017/sus.2020.17.

Shawanda G and Wesley-Esquimaux C (2010) Voice of an elder: zhaawonde - dawn of a new Day. *First Peoples Child and Family Review* 5: 22–39. DOI: 10.7202/1069059ar.

Simpson B (2016) Where's the agency in leadership-as-practice?. In: Raelin JA (ed) *Leadership-as-Practice: Theory and Application*. New York: Routledge, pp. 159–177.

Smith LT (2012) *Decolonizing Methodologies: Research and Indigenous Peoples*. London: Zed Books Ltd.
Snow KC, Hays DG, Caliwagan G, et al. (2016) Guiding principles for indigenous research practices. *Action Research* 14: 357–375. DOI: 10.1177/1476750315622542.
Sullivan D (2020) Sullivan honors Alaskans of the week. Available at: https://www.sullivan.senate.gov/newsroom/videos/sen-dan-sullivan-r-alaska-honors-alaskans-of-the-week-in-igiugig (accessed 28 September 2020).
Sullivan D (2017) Sullivan honors Alaskan of the week. Available at: https://www.sullivan.senate.gov/newsroom/press-releases/sullivan-honors-alaskan-of-the-week-alexanna-salmon (accessed 25 November 2019).
Todd Z (2016) An indigenous feminist's take on the ontological turn: 'ontology' is just another word for colonialism. *Journal of Historical Sociology* 29: 4–22. DOI: 10.1111/johs.12124.
Tuck E (2013) Commentary: decolonizing methodologies 15 years later. *AlterNative: An International Journal of Indigenous Peoples* 9: 365–372. DOI: 10.1177/117718011300900407.
Turner JR, Baker R, Schroeder J, et al. (2019) The global leadership capacity wheel. *European Journal of Training and Development* 43: 105–131. DOI: 10.1108/EJTD-07-2018-0061.
Uhl-Bien M, Marion R and McKelvey B (2007) Complexity leadership theory: shifting leadership from the industrial age to the knowledge era. *The Leadership Quarterly* 18: 298–318. DOI: 10.1016/j.leaqua.2007.04.002.
United Nations (2013) *The United Nations Declaration on the Rights of Indigenous Peoples: A Manual for National Rights Institutions*. New York: United Nations.
Veland S, Scoville-Simonds M, Gram-Hanssen I, et al. (2018) Narrative matters for sustainability: the transformative role of storytelling in realizing 1.5°C futures. *Current Opinion in Environmental Sustainability* 31: 41–47. DOI: 10.1016/j.cosust.2017.12.005.
Verbos AK and Humphries M (2014) A native American relational ethic: an indigenous perspective on teaching human responsibility. *Journal of Business Ethics* 123: 1–9. DOI: 10.1007/s10551-013-1790-3.
Vignola R, Leclerc G, Morales M, et al. (2017) Leadership for moving the climate change adaptation agenda from planning to action. *Current Opinion in Environmental Sustainability* 26–27: 84–89. DOI: 10.1016/j.cosust.2017.03.005.
Warner LS and Grint K (2006) American Indian ways of leading and knowing. *Leadership* 2: 225–244. DOI: 10.1177/1742715006062936.
Watts S and Stenner P (2005) Doing Q ethodology: theory, method and interpretation. *Qualitative Research in Psychology* 2: 67–91. DOI: 10.1191/1478088705qp022oa.
Watts V (2013) Indigenous place-thought and agency amongst humans and non humans (first woman and sky woman go on a European world tour!). *Decolonization: Indigeneity, Education & Society* 2: 20–34.
Werbeloff L, Brown RR and Loorbach D (2016) Pathways of system transformation: strategic agency to support regime change. *Environmental Science & Policy* 66: 119–128. DOI: 10.1016/j.envsci.2016.08.010.
Westley F, Tjornbo O, Schultz L, et al. (2013) A theory of transformative agency in linked social-ecological systems. *Ecology and Society* 18: 27. DOI: 10.5751/ES-05072-180327.
Whyte K, Caldwell C and Schaefer M (2018) Indigenous lessons about sustainability are not just for "all humanity". In: Sze J (ed) *Sustainability. Approaches to Environmental Justice and Social Power*. New York: NYU Press, pp. 149–179.
Wilson S (2008) *Research is Ceremony: Indigenous Research Methods*. Black Point, NS: Fernwood Publishing.
Wolfgramm R, Spiller C and Voyageur C (2016) Special Issue: indigenous leadership – editors' introduction: leadership. *SAGE* 12: 263–269. DOI: 10.1177/1742715016646930.

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SPECIAL FEATURE: ORIGINAL ARTICLE

The "How" of Transformation: Integrative Approaches to Sustainability

Decolonizing transformations through 'right relations'

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Abstract

Climate change has been conceptualized as a form and a product of colonization. In this perspective, it becomes important to base climate change adaptation and transformation efforts on decolonizing practices and imaginaries. A central aspect of decolonization is contained in the Indigenous conceptualization of relationality. Exploring how decolonization and relationality might form the foundation for transformations research, we engage with the concept of 'right relations'. In the context of this inquiry, we take 'right relations' to mean an obligation to live up to the responsibilities involved when taking part in a relationship—be it to other humans, other species, the land or the climate. We begin the paper by bringing together the literature on climate change adaptation, transformation and decolonization to show their interconnections and emphasize the need to engage with all three when talking about sustainability. Second, we invoke the idea of 'right relations' to address how non-Indigenous transformation researchers can further the process of decolonization as part of their research. Third, we offer insights from our own research experience with narrative practices to help exemplify how transformation researchers in all disciplines might embody 'right relations' centered around four characteristics: listening deeply, self-reflexivity, creating space and being in action. Embodying 'right relations' is a continuous process of becoming with no end point, and we do not wish to suggest that we hold the answers. Instead, we reflect on our role in this process and hope for these words to open a dialogue about how we might move towards a 'decolonized humanity'. We suggest that willingness to be affected and altered by the process of reciprocal collaborations is key to imagining decolonial ways of being and that this in turn can be a powerful manner of generating equitable and sustainable transformations.

Keywords Transformation · Decolonization · Right relations · Climate change · Relationality · Reflexivity · Indigenous · Narrative practices

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Introduction

Climate change is a relationship problem (O'Brien 2020). It is the result of a certain kind of relationship between humans and Earth characterized by exploitation and a shortsighted focus on growth. Seeking to uncover the nature of this relationship, a growing number of scholars argue that climate change can be seen as a form and product of colonialism. They argue that the mindset that gave way for the exploitation of 'distant Others' during colonization is the same mindset responsible for wreaking havoc on ecosystems and the global climate (Baldwin and Erickson 2020; Davis and Todd 2017; Dhillon 2018; Porter et al. 2020; Whyte 2017). This is especially so due to the strong link between colonialism and capitalism, with colonialism paving the way for capitalism to emerge through the exploitation of natural resources and cheap or forced labor. Together, these two

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systems enabled the extractivist and carbon-intensive economies that we know now to be the drivers of human-caused climate change (Whyte 2017).

Climate change has negative implications for the cultural integrity and self-determination of Indigenous peoples due to changes in the ecological conditions that support and evolve with Indigenous lifeways. This includes the necessity for some Indigenous communities to relocate due to climate change impacts, such as coastal erosion. Yet, climate change is not the first such disruption. Rather, from the perspective of Indigenous peoples across the world, climate change is the most recent chapter in a long history of environmental changes inflicted upon the world, and Indigenous peoples in particular, through colonialism. Speaking from the context of Turtle Island[1] (North America), Muscogee scholar Wildcat (2009) argues that current relocations can be seen as part of the third removal of Indigenous peoples by colonialism; the first being the geographical displacement onto reservations accompanied by the destruction of ecosystems on which Indigenous peoples relied, and the second being the social and 'psycho-cultural' removal of children from their families and into boarding schools. Similarly, reflecting on the dystopian climate change conversation occurring in Australia after the 2019 and 2020 bush fires, Gamilaroi educator and founder of the Australian Indigenous media organization, IndigenousX, Pearson (2020) finds that "it is not a different conversation than the one that Indigenous people have been having in various forms since the earliest days of invasion and colonisation." The ecological and cultural footprint of colonialism is seismic (Davis and Todd 2017). Potawatomi scholar, Whyte (2017, p. 154) therefore suggests that human-caused climate change can be understood as an "intensification of colonially-induced environmental change" rather than as a separate issue. Furthermore, he argues that underlying the ecological tipping points of biodiversity loss and climate change is a relational tipping point, which has already been reached (Whyte 2020). Tending to these relations is a prerequisite for tending to climate change itself.

Holding this perspective necessarily challenges the common framing of climate change as an environmental issue that can be solved by reducing greenhouse gas emissions. If climate change is a form and product of colonialism, then addressing climate change implies addressing continuing colonial relations. The increasing amount of research on climate change, much of which informs the debate about climate change solutions at the political level, generally has little engagement with the struggles of Indigenous peoples, Black people or people of color (BIPOC). As a result, researchers who are unaware of the ties between climate change and colonization risk overlooking important entry points for solutions, or possibly perpetuating colonial and oppressive structures (Cameron 2012). This is not only problematic due to the harm it inflicts on Indigenous communities but also because it keeps us scratching the surface rather than getting to the root of the problem (Davis and Todd 2017).

Transformation has emerged as a concept partially in response to the lack of action on climate change when only perceived through the lens of mitigation and adaptation. As the idea of transformation is gaining traction in climate change and sustainability research, it is worth asking how this concept may enable an active engagement with decolonization efforts alongside efforts to halt and adapt to climate change. As with decolonization, the concept of transformation implies deep-rooted changes to unsustainable societal systems and structures as well as the underlying logics and values that help maintain them (Feola 2015; O'Brien 2012). Yet, as a relatively recent concept in the context of environmental change, the lack of a clear theoretical foundation makes the concept slippery and puts it at risk of being co-opted by other less emancipatory agendas (Blythe et al. 2018). We are called to 'act now!' on climate change. Yet, how we embody and work with transformations matters for what outcomes we create. Thus, in the context of this paper, we are reminded that while decolonization implies transformation, transformation, as it is widely conceived, does not necessarily imply decolonization.

As non-Indigenous climate change and sustainability researchers with European and settler backgrounds (from Denmark, Canada, and Germany) who work in Indigenous contexts and from a feminist standpoint, we recognize the acute need for critical reflexivity of ourselves as researchers. A concurrent task is to be aware of how productions of reflexivity of non-Indigenous researchers can unintentionally overemphasize white voices in dialogues about decolonization. We wish to engage the role of non-Indigenous researchers reflexively and productively; our aim is to open dialogue about what transformation as decolonization may look like in a research context as a way to generate change in our own communities. While we believe it is necessary to embrace equity and care in all of our interactions, we especially recognize the importance of decolonial efforts from non-Indigenous people for society to successfully adapt to climate change in a way that centers equitable relationships between Indigenous and non-Indigenous people. We recognize that decolonizing ourselves and our research practices is a journey without a final destination. Rather than a conclusive academic document, we wish for these words to express our commitment to embarking on this journey,

[1] Turtle Island is an Indigenous name for North America, originated in the origin stories of Anishinaabe peoples. We use this name as a sign of respect for the first inhabitants of these lands and as another step towards decolonizing our research.

hoping for comments and reflections from Indigenous and non-Indigenous folks alike.

We begin the paper with a brief overview of the concept of transformation and its emergence as a response to the growing critique of climate change adaptation. We outline the challenges that exist when working with the transformation concept, emphasizing the added complexity gained by looking through a decolonial lens. Our main inquiry is how non-Indigenous researchers can work with transformation in a way that furthers decolonization by dismantling oppressive systems in the communities in which we live and work. As a way of providing partial answers to this question, we turn to writings by Indigenous scholars, knowledge holders and allies who speak to the notion of what collectively we refer to as 'right relations,' a mode of being that is grounded in Indigenous ontologies characterized by relationality and reciprocity among both human and non-human relatives. In the context of doing research with Indigenous people and communities, we take 'right relations' to mean practicing deep listening, self-reflexivity, creating space and being in action. Unfolding what this mode of being can look like in climate change and sustainability research, we explore the methodologies of narrative practices drawing on our own research and activist experiences with Indigenous communities on Turtle Island (Canada and the US), exemplifying with personal vignettes from these endeavours. We aim to respond and contribute to the emerging work on the manner of how to enact transformations that are equitable, just and sustainable in our communities and in settings of knowledge exchange, hoping to contribute towards a deeper understanding of the 'how' of transformation and how it links to other struggles for emancipation and freedom. We argue that the notion of 'right relations' can help us imagine what a decolonial reality could be as well as the manner of how we may begin to create this collectively.

From adaptation to transformation

Recent years have seen a growing critique of the theorizing and implementation of climate change adaptation (Nightingale et al. 2019; Scoville-Simonds et al. 2020), including the tendency to frame adaptation as something both apolitical and inevitable (Pelling et al. 2015). This framing risks reinforcing existing vulnerabilities or creating new ones (Eriksen et al. 2021), while also preventing engagement with the root causes of climate change (Stirling 2015). With its emphasis on radically changing societal systems, structures and relationships, the transformation concept carries with it a promise of responding to the critiques of adaptation: addressing climate change all the while moving the world towards equity, justice and sustainability (Kates et al. 2012; O'Brien 2012; Pelling et al. 2015). The concept is increasingly moving into high policy forums and is becoming a key feature of research and theorizing on sustainability (IPCC 2014). However, while transformation is generally seen to involve a fundamental change to a system, there is no consensus as to what characterizes transformational processes and outcomes (Feola 2015). Thus, the challenges outlined above are not evaded by exchanging adaptation for transformation (Eriksen et al. 2021). Many of these challenges are mirrored in how the concept of transformation is being applied in practice. Blythe et al. (2018) find that without a coherent theoretical anchoring and without addressing issues of power, the transformation concept is at risk of getting co-opted by actors that favor or stand to benefit from maintaining the status quo. The authors also warn against framing transformation as inherently good as this misses the many nuances in how such processes are experienced, including differentiations in terms of access to resources and decision-making that create distinct 'winners' and 'losers'. In order for the transformation concept to avoid these risks, Blythe et al. (2018) suggest that transformation research needs to engage more directly with issues of power and resistance and with the pluralization of the transformation discourse, making room for different ways of knowing and being in the world.

These risks and potential remedies gain additional dimensions when viewed in the context of decolonization. Especially the question of what or whom is being transformed becomes increasingly pressing due to the long history of transformational processes forced upon Indigenous peoples by outsiders, most of which did not leave the people and societies stronger and more capable of creating a sustainable future (Reo and Parker 2013). Many acts of colonization that are now recognized as cultural genocide were part of the perceived moral imperative to 'Kill the Indian to Save the Man' (Kimmerer 2013), justified "under the banners of science, civilization, progress, and protection" (Parsons and Nalau 2016, p. 93). Knowing about this past should make us cautious about the ease with which dominant society introduces new ideas about (climate) change and transformation into Indigenous communities, no matter how ethically sound it appears to our current mindset, and even prompt us to question introducing these ideas at all. Yet the top-down transformations of Indigenous communities continue, also in the context of climate change. For instance, despite growing attention to Indigenous knowledge of environmental change, Indigenous knowledge systems are often "transformed to fit within the epistemological and ontological premises of western science" (Klenk et al. 2017, p. 2), informed by what Quandamooka scholar Moreton-Robinson (2004) calls 'the possessive logic of patriarchal white sovereignty'. This "colonial 'system of cognition'" (Cameron 2012, p. 104), influences efforts to govern climate change in Indigenous communities, including the tendency to define Indigenous

peoples as inherently vulnerable to climate change and in need of non-Indigenous intervention to save them (Parsons 2014).

While climate change presents us with the urgent need to act, including to adapt and transform, the process of identifying challenges and possibilities for such transformations is inherently political and related to questions of power and sovereignty (Golden et al. 2015). Thus, while "colonial history is replete with examples of sweeping interventions that were justified precisely through their urgency" (Cameron 2012, p. 112), our challenge is to balance climate change adaptation with transformations grounded in critical reflection and liberatory action. Parsons and Nalau (2016, p. 92) suggest that "The task of transformational change, therefore, lies in the intersections of histories, values, governance structures, and practices, all of which are bound up with particular expressions of knowledge and power." And, we might add, all of which are further bound up in particular relations. Next, we turn to such relations in the context of decolonization.

Decolonization, relationality and 'right relations'

The challenges discussed above suggest that the concept of transformation is in need of some critical refinement, ensuring that its theorization and application furthers ongoing struggles for just and equitable change and avoids perpetuating past wrongdoings. That is, a decolonial approach is needed to the theory and practice of transformation (Zanotti et al. 2020). For this purpose, we engage the decolonization literature more explicitly,[2] focusing on the notion of relationality and the idea of 'right relations'. While decolonization can refer to a wide range of peoples, places and situations, we focus here on the Indigenous context of Turtle Island, while also noting similarities to other Indigenous peoples.

Decolonization

In its most narrow sense, decolonization refers to "the process in which a country that was previously a colony (= controlled by another country) becomes politically independent" (Cambridge English Dictionary, n.d.). Decades after the first 'colonies' gained independence, of course, the term is used much more broadly. For the purpose of this paper, we take decolonization to indicate the continuous process of recognizing and dismantling oppressive and exploitative relations between colonizing and colonized societies in ways that enhance the latter's capacity to enact political and socio-economic self-determination and support cultural integrity. In the context of Indigenous peoples and societies on Turtle Island, the term 'settler colonialism' is used to describe "a distinct method of colonising involving the creation and consumption of a whole array of spaces by settler collectives that claim and transform places through the exercise of their sovereign capacity" (Barker 2012). Speaking to the characteristics of the settler-colonial relationship in Canada, Dene scholar Coulthard (2014, pp. 6–7) finds it to be one of domination: "it is a relationship where power—in this case, interrelated discursive and non-discursive facets of economic, gendered, racial, and state power—has been structured into a relatively secure sedimented set of hierarchical social relations that continue to facilitate the dispossession of Indigenous peoples of their lands and self-determining authority." Seen in this light, colonialism is not a thing, but rather "the sum effect of the diversity of interlocking oppressive social relations that constitute it" (Coulthard 2014, p. 15). Thus, colonization of Turtle Island and its inhabitants is not only a historical process of cultural, and in some cases literal genocide against Indigenous peoples but a continuous and contentious unfolding of oppressive and exploitative policies and sentiments from the side of the respective settler governments and some parts of settler society.

As the rejection of or antithesis to colonialism, decolonization has at least as many facets as does colonialism. Sium et al. (2012, p. 2) write that attempting to define decolonization is "a messy, dynamic, and a contradictory process" and that "despite our certainty that decolonization centers Indigenous methods, peoples, and lands, the future is a 'tangible unknown', a constant (re)negotiating of power, place, identity and sovereignty". This focus on a 'tangible unknown' embraces creativity and uncertainty and "leaves room for dialogue and for dissent, as well as for coming together to each contribute to one another's shared visions and goals" (Sium et al. 2012, p. 13). Decolonization then becomes a continuous process undertaken by people with intersectional identities rather than an end-point at which people and places have become decolonized. Taking the concept of decolonization a step deeper, it also refers to the unsettling of colonial mindsets and assumptions among both colonizing and colonized peoples and institutions. Such an unsettling requires that Indigenous worldviews, knowledge systems and paradigms are recognized and legitimized. Informed by Mississauga Nishnaabeg scholar Simpson (2014), Collard et al. (2015, p. 326) assert that extractive colonialism "implies attempts to erase distinct ways of bringing worlds into being," and that "transforming these conditions requires political struggle grounded in decolonizing". Decolonization then requires a recognition of the many

[2] There are numerous articulations of the struggle for freedom among Indigenous peoples, including anti-colonization and the more regenerative Indigenization. In what follows we have chosen to make use of the term decolonization due to its familiarity to a broad range of audiences, recognizing that there is no 'undoing' colonialism.

processes of worlding that simultaneously exist: "Worlding practices bring worlds into being; different stories enact different worlds that may be co-emergent, partially connected or in conflict" (Collard et al. 2015, p. 328). Acknowledging the depth and breadth of Indigenous paradigms and worlding-practices is crucial in disrupting the dominant colonial narratives.

Relationality

Bearing this diversity in mind, a central aspect of many Indigenous worldviews and paradigms is relationality and the inherent connections between humans, other species and the land. In many Indigenous cosmologies, land takes an active part in bringing worlds into being and is the originator of life and the source of language, stories, history and knowledge (Bawaka Country et al. 2013; Watts 2013). Anishinaabe scholar Watts (2013, p. 27) writes, "Our truth, not only Anishnaabe and Haudenosaunee people but in a majority of Indigenous societies, conceives that we (humans) are made from the land; our flesh is literally an extension of soil." This deep relationality has implications for how we relate to one another and how we view our place in the world. The Southern African notion of 'Ubuntu' (I am because we are), presents reality as comprised of relations between everything both living and non-living, including those deceased and those not yet born, and the importance of engaging in practices that honor those relations (Chilisa 2017). Thus, humans are not detached from and somehow above the rest of creation. Rather, some Indigenous scholars represent humans as "respectful partners or younger siblings in relationships of reciprocal responsibilities within interconnected communities of relatives inclusive of humans, non-humans (i.e., plants, animals etc.), entities (i.e., sacred and spiritual places etc.) and collectives (i.e., prairies, watersheds, etc.)" (Johnson et al. 2016, p. 26).

Relationality also matters for doing research. Reflecting on the underlying assumptions of an Indigenous research paradigm, Opaskwayak Cree scholar Wilson (2001) emphasizes that knowledge too is relational, and that research implies relating to not only the research participants but to all of creation. Methodology, then, is not aimed at answering questions of validity and reliability but instead at helping the researcher ensure relational accountability. According to Gerlach (2018, p. 2), "relationality provides the necessary epistemological scaffolding to actualize the underlying motives, concerns, and principles that characterize decolonizing methodologies". This is akin to Kenngeiser and Métis scholar Todd's (2020, p. 385) suggestion of rethinking the case study as a 'kin study,' in which "more embedded, expansive, material, and respectful relations to people and lands" can be enacted. There is a substantial body of work on how a relational paradigm could and should translate into practice in the context of doing research. Here too there are commonalities across cultural contexts, although the specific concepts vary slightly between sources. Exploring commonalities between a Canadian and Australian setting, Wilson (2008) offers the concepts of respect, reciprocity and relationality as foundational for doing Indigenous research. Similarly, in an African context, Bantu scholar Chilisa (2020) finds that an Ubuntu-based ethical framework is informed by the coupled concepts of relational accountability, respectful representation, reciprocal appropriation, and rights and regulations.

Embodying Ubuntu and/or relationality can be a way to step out of old allegiances and decolonize relations. Papaschase Cree scholar Donald (2012) argues in this context for an ethical relationality, one that "does not deny difference, but rather seeks to more deeply understand how our different histories and experiences position us in relation to each other." Rather than erasing particular historical and cultural contexts, an ethical relationality "puts these considerations at the forefront of engagements across frontiers of difference" (Donald 2012, p. 45). Seen in this light, decolonization becomes a matter of relating differently, and from a foundation of respect and reciprocity.

'Right relations'

Speaking to the above insights, some writers and activists have problematized the term 'decolonization' as part of the erasure of colonizer actions (Adebisi 2019; Landry 2018). Others argue that Indigenous communities need to focus less on what they do not want to be and instead create visions for what an Indigenous future could be (Coulthard 2014; Wilson 2016). Through our experience in research and activism, we have heard the emerging term 'right relations' used orally and colloquially to describe the antithesis to colonialism. This conceptualization acknowledges that colonial relations must first be exposed and uprooted in order for 'right relations' to take root (Collard et al. 2015; Regan 2010). Thus, if colonization implies extraction and oppression, decolonization implies 'right relations' with an emphasis on respect, reciprocity and just actions. The term 'right relations' may be related to the central concept of 'all my relations,' which Cherokee scholar King (1990, p. ix) describes as a reminder of all the human and nonhuman relationships as well as "an encouragement for us to accept the responsibilities we have within the universal family by living our lives in a harmonious and moral manner." Similarly, writing on healing from colonial trauma, Haig-Brown and Lac Seul scholar Dannemann (2002, p. 463) identify respectful relations as "the basic value of indigenous knowledge." Reflecting on how 'right relations' is anchored within Indigenous worldviews and traditions, Ross (2014, chap. 3) argues that "traditional life centered on striving at all times to create

'right relations,' not only with people but also with everything else that surrounded you, not only in the present but also in the past and future, and not only within the physical realm but within the spiritual realm as well." Yet, "It is not a religious activity, not something separated from your every moment; rather, every moment is an opportunity to deepen engagement in right relationships." 'Right relations,' then, can be seen as an obligation to live up to the responsibilities involved when taking part in a relationship—be it to other humans, other species, the land or the climate.

'Right relations' shares some similarities with the more commonly used term 'ally', used to describe the role of white people in supporting the struggles of freedom of BIPOC people. As the dialogue on allyship evolves, some contest the term because of its tendency to place responsibility on the colonized (Pugh 2020). Colonization is not a mutual problem and colonial violence does not and has never originated from the colonized; it is the sole action of the colonizer. This criticism could also be directed at the idea of 'right relations' if practiced from a mindset of equal responsibility. However, in our use of the term, 'right relations' alludes to the assertion that uneven power relations can be changed, as in to *right* relations. It opens up and invites for non-BIPOC people to take an active role in this work.

Embodying 'right relations' in research: examples from narrative practices

The concept of 'right relations' is not only relevant when talking about efforts to decolonize certain societal structures and systems, but also when talking about global wicked problems, such as climate change. As argued in the introduction, climate change can be seen as a relationship problem (O'Brien 2020) and as part and parcel of colonialism (Whyte 2017, 2020). In the second half of this paper, we explore how the idea of 'right relations' can form the basis for researching transformations in a way that honors and supports the need for decolonization. Much excellent scholarship already exists on Indigenous methodologies and research practices (Chilisa 2020; Denzin et al. 2008; Kovach 2010; Ritenburg et al. 2014; Smith 2013; Wilson 2008). Rather than expanding on this work, we draw on some of its insights to explore how 'right relations' might be embodied in processes of researching transformations.

Based on the literature and our own experiences from research, we have structured this section along four complementary themes that we take to be important for embodying 'right relations': listening deeply, practicing self-reflexivity, creating space, and being in action. As a way of grounding our inquiry in the context of doing research, we reflect on how these themes can be expressed through narrative practices, exemplifying this with vignettes from our own experiences engaging in research and activism alongside Indigenous people on Turtle Island (coastal and northern British Columbia, Canada and southwest Alaska, US) at various points during 2011–2019. As we do not report on the research itself but rather take a meta-perspective on our research practices, we do not include a methods section. Some of the methods have been reported elsewhere, see for instance Gram-Hanssen (2019). Importantly, we do not intend to present narrative practices as the only approach for researchers to practice 'right relations'. Rather, we offer them as examples, sharing our own experiences with such practices.

Listening deeply

At the heart of 'right relations' lies the capacity and willingness to relate respectfully. In a research context, we take this to mean the capacity and willingness to first and foremost listen: Listen to the perspectives, concerns and needs of the community in question and work to ensure that these are at the center of the research endeavour. In her seminal book on decolonizing methodologies, Ngāti Awa and Ngāti Porou scholar Smith (2013, p. 1) reminds us that the long history of extractive and exploitative relations between researchers and Indigenous communities has turned the word 'research' into "one of the dirtiest words in the indigenous world's vocabulary." Embodying 'right relations' means repairing this relationship. Deep listening and present, felt, engagement are being called for as practices to build capacity for 'right relations'. Aspiring allies are being called to 'sit with' the thoughts, emotions and experiences communicated by people whose voices have been marginalized (Ariel 2017).

In this context, deep listening is different from active listening in that it goes beyond listening to the words spoken; it enters into an engagement with Indigenous paradigms, ontologies and epistemologies in a meaningful effort to think, feel, and act differently. Importantly, however, many Indigenous feminist scholars write about the imperative for non-Indigenous scholars to stay mindful of the issues of power and material relations in place when engaging with Indigenous and other non-dominant cosmologies and paradigms (Chilisa 2017; Todd 2016). Rather than attempting to evaluate and translate such paradigms based on Western understandings of knowledge, an alternative is to truly relate to and learn from them. Deep listening can provide a means of doing so. For instance, Cruikshank (1990) writes about her experience of recognizing the incongruity in using Western notions of autobiography in a collaborative effort to capture the life stories of Yukon First Nations women. She writes, "From the beginning several of the eldest women responded to my questions about secular events by telling traditional stories. The more I persisted with my agenda, the more insistent each was about the direction our work should take. Each explained

that these narratives were important to record *as a part* of her life story" (Cruikshank 1990, p. 2). Critically reflecting on her own notion of autobiography, Cruikshank (1990, p. 3) locates connection as central to the form of these women's stories: "Connections with people are explored through ties of kinship; connections with land emphasize sense of place. But kinship and land provide more than just a setting for an account, for they actually frame and shape the story". Thus, through deep listening a different understanding of narrative emerged and altered the shape of the research created.

Narrative approaches can provide a way of expressing an Indigenous perspective through the resonance of words and their ability to evoke somatic and tacit knowledge. This in turn can contribute to imagining a decolonial reality (Regan 2010). Regan (2010) examines the profound potential for Canadians to engage with reflexive change following the Truth and Reconciliation Commission (TRC) and the stories shared by residential school survivors. In response to the Indigenous peoples testimonies within the TRC, Regan (2010, p. 15) calls for settlers to "bear ethical witness and learn to listen differently." These 'non-actions' of bearing witness and deep listening make space for Indigenous voices to be centered and for the weight of their experiences to truly be felt by the listener. Storytelling is an inherently relational form, and thus can assist in opening space to be affected as listeners and for new realities to emerge. This is also the case in the context of research, where narrative practices can open up for community-driven and collaborative inquiries that are grounded in the lived experiences of those engaging in the research process.

Box 1 Storytelling as active remembering, Julia

During a visit in Sechelt I met Barbara Higgins, an Elder of the Shíshálh Nation. She is the rememberer of the Salish Nation, responsible for passing on the stories of her community. "I carry on the things that residential schools and the government were trying to numb down. I have written 250 stories. I have been an activator. I still have work to do, stories to write. I am needed here." In our interview at her house she remembers when she was given this task: "I was seven years old when my Sechelt elders activated me as Sechelt rememberer. They took my trembling young body, hugged me and peered so deeply into my eyes, I felt the result of their scan on the soles of my feet, from the inside. They blew softly in each of my ears and said: 'The Shishálh have been guarding and holding this land from long before the white man learned to count time. Now it is up to you to stand up for this land and our people.'" The visit at her house and the stories had a deep impact on me. My previously outlined interview-guide had become obsolete as Barbara started sharing with me her stories. Sunken in an old leather chair I listened to her words that seemed to come from a different place and time, carrying messages of timeless wisdom. The encounter with Barbara radically changed my research practice with Indigenous artists, which from then on focused more on creating space and listening deeply. Instead of the researcher I became the learner.

Self-reflexivity

The second quality of 'right relations' we wish to bring forth is self-reflexivity as a practice. The aim of such a practice is to uncover blind spots, question assumptions and allow oneself to be affected, even transformed, in the process of engaging with the world. Engaging the reflexivity that story offers is one potent way of moving towards a deeper and more embodied understanding of what a decolonial reality may look and feel like. Being reflexive about which stories we tell individually and as a culture can also be a response to the call for accountability. For instance, Syilx Okanagan scholar Armstrong (1990, pp. 234–235) encourages non-Indigenous researchers to "Imagine… courageously questioning and examining the values that allow for the de-humanizing of peoples through domination" and "interpreting for us your own people's thinking towards us, instead of interpreting for us, our thinking, our lives, our stories". Likewise, Regan (2010) asserts that before engaging Indigenous communities in any process of building towards the future, it is necessary to confront and disrupt mythologies of colonial benevolence and to meaningfully engage as listeners willing to be affected by the truth-telling of Indigenous peoples. This involves critically reflecting on Euro-Western hierarchical belief systems, including the emphasis on individualism, which has come into focus as a key concept to dismantle in creating a decolonial reality (brown 2017). It also includes examining the assumptions of a binary relationship between "the superior European/Western knowledge and the irrelevant and superstitious knowledge of the 'other'" (Chilisa 2017, p. 814), while avoiding the temptation to integrate knowledges by subsuming non-dominant paradigms under Western ones (Romm 2015). Reflecting on the possibilities for bridging knowledges in transformative education research, Romm (2015, p. 425) contends that the process of learning across well-defined boundaries can "enrich all our pathways into the variety of ways of responsibly practicing social research."

When coupling deep listening with self-reflexivity, stories can inspire action. Regan (2010) suggests that a response to the generous sharing of stories from residential school survivors in Canada is to both witness them and use the momentum they generate to propel settler-Canadians towards accountable action. Regan draws on scholarship from Boler

(1999) that emphasizes the potentials contained within affect and emotion; our ability to enact change stems in part from our ability to feel. Receiving stories may connect us to a sense of purpose in carrying out the complex work of helping to create a decolonial reality. Stories may also act as containers to bring disparate ideas together and envision new ways forward. Cruikshank (2000, pp. 3–4) highlights storytellers as using stories to "build connections where rifts might otherwise appear" and the power of storytelling to "construct meaningful bridges in disruptive situations".

The act of telling or receiving a story can extend itself into fostering new enactments and ways of being. Engaging in story in a research process offers the opportunity to go beyond relating analytically and to understand story as an animate force that shapes our reality and to allow it to affect us in the places we inhabit as well as in our research.

Box 2 The unfolding of a living story, Irmelin

During a visit to the Yup'ik community of Igiugig, Alaska, community Elders Mike and Dallia Andrew shared the story of starvation with me. The story came up in relation to Yup'ik values and how the younger community members engaged with these values. The story depicts a grim scenario of a 'double winter' in which all the common food sources vanish and people are forced to give up the values of sharing since everyone only has barely enough to sustain themselves. An important component of the story is detailed descriptions of where to find certain fish and plants that can sustain humans through this time. While at the time I could sense that this story carried a lot of significance, it was unclear to me how and why. Different variations of this same story have come up in later conversations, and each time I gain more insight into its meaning and importance. As a living story, the story of starvation sheds light on the importance of reciprocity, environmental stewardship, deep ecological knowledge, resilience and adaptability among the Yup'ik. It emphasizes the importance of always being ready for what may come, assuring that community members will be able to survive as long as they stay connected to their cultural roots. A good story is one that sheds light on whatever question is asked, giving important nuance and linking past, present and future in ways that a straightforward answer cannot. While I have never attempted to analyze the starvation story, it continues to 'work on me' as it helps dismantle my preconceived notions of vulnerability and nuance my understanding of what resiliency and adaptive capacity really means in this community.

Creating space

Embodying 'right relations' means not stopping at deep listening and self-reflexivity but taking steps to ensure that voices of oppressed people are heard by the world. Many calls for solidarity point to the importance of centering voices that have been marginalized (Spivak 1988). Recent academic works by Indigenous authors make clear the vast contributions of Indigenous thought in contemporary understanding of worldviews or cosmologies of interconnection (Rosiek et al. 2020; Todd 2016; Watts 2013). Crediting the knowledge of Indigenous scholars and thinkers is one way of creating space and centering Indigenous voices in transformations research. For example, many post-constructivist concepts being used to describe the natural world, such as 'more than human', 'multi-species sentience' and the climate as a 'common organizing force' implicitly draw insight from Indigenous thinkers and knowledge holders. The lack of appropriate acknowledgement is yet another act of colonialism (Todd 2016), and part of the erasure of the colonized through the persistent devaluation of Indigenous knowledge within as well as outside of academia (Akena 2012).

Acknowledging and crediting Indigenous thought and language in academia centers the contributions of Indigenous thought systems in the work of transformation, moving towards a decolonized way of carrying out research. While still existing largely on the margins, decolonial scholars are increasingly showcasing ways to make room for non-dominant thought systems and paradigms within academic research. Bawaka Country et al. (2013), for instance, gave co-authorship to 'Country' in recognition of land as a co-creator of meaning. In an African context, scholars are increasingly making use of African philosophical traditions, such as philosophic sagacity, which legitimizes the wisdom of people without formal education (Chilisa 2017).

Creating space is not only about making room for Indigenous voices in one's own work, but rather using one's position to create space for the people behind the stories and voices to step forward. Often the labor of raising awareness about marginalization and oppression falls on those who are experiencing it. Therefore, amplifying the voices and stories of marginalized peoples, as well as the particular knowledge systems underpinning them, can be one way of creating space and engaging in right relations—recognizing that making space for others implies giving up some of the space we as non-Indigenous researchers currently enjoy (Porter et al. 2020).

In a more collaborative vein, space can also be created through transcultural learning via art, story and activism where Indigenous and non-Indigenous peoples can share knowledge and imaginaries of a decolonized reality. Related to this, the act of sharing a story itself is a means of creating space. As explored in the above sections, story creates space to engage different paradigms. Sámi scholar Kuokkanen (2007, pp.

425–426) writes about how the resonance contained in language and the power of words has the capacity to shape reality and how writers "rely heavily on the power of words and symbolic language just as *noadiddit*, shamans used to do. (…) We know that language is power through its means of creating realities". Story has the power to open new emotional and relational capacities and ways of comprehending the world within the listener. In sharing a story, a space is created in which the listener (and the speaker) may come to new realizations or be affected by a transformative moment. In other words, sharing stories may act as a container from which change can emerge. By centering and amplifying Indigenous voices and acknowledging Indigenous language and metaphors in academia and beyond we open ourselves to deeper knowledge of our world and contribute toward dismantling the current colonial relations.

Box 3 Storytelling across generations, Nicole

While facilitating an intergenerational digital storytelling project, I had the opportunity to witness the ripples such a project can create. Nak'azdli Elders were invited to share traditional stories with students in grades five and six. The students then interpreted these stories through short digital videos with a recording of the Elder's narration, some in English and some in the traditional language of Dakelh. Hearing stories about the traditional territory of the Nak'azdli Whu'ten First Nation (in what is now known as northern British Columbia) created space for students, Indigenous and non-Indigenous alike, to understand this place differently and to make their own connections to it through digital images. For instance, one student filmed her footsteps crunching through the snow on her way home to illustrate a journey an Elder had spoken about. In watching her film, the weight of how rapidly this land has been transformed by industrial projects became clearer to me. At the same time, the student's ability to make links to the Elder's narrative using her own day to day experiences- her boots making prints in the snow in the evening, the woods by the schoolyard - was moving to witness. I was struck by the resilience in the creative and imaginative ways these students made connections between past and present. Through storytelling, new understandings, and therefore new possibilities for relating to and with this territory, were created.

Being in action

The fourth quality to embodying 'right relations' we wish to bring forth is that of continuously being in action. While listening, reflecting and creating space are important, it is the 'backstage' work of ensuring 'right relations'. It is crucial that researchers step to the front of the stage to go from theorizing and sympathizing to taking action. Gibson-Graham and Roelvink (2010, p. 342) argue that, "to understand the world is to change it. As a performative practice, academic research is activism; it participates in bringing new realities into being". This alludes to the fact that through our research we either contribute to change or towards retaining the status quo. While this can feel like a heavy responsibility, it also presents a potential for decolonizing our practice at every turn.

One obvious way for researchers to embody 'right relations' on the 'frontstage' of research is through writing. Potawatomi scholar Kimmerer (2013, p. 152) says that, "writing is an act of reciprocity with the world; it is what I can give back in return for everything that has been given to me". By being explicit about our commitment to decolonizing our own research and furthering the struggles of Indigenous peoples, we have the potential to generate change in our communities of practice. However, decolonization is about more than the written word, as it has material consequences. Unangax̂ scholar Tuck and Yang (2012) remind us that decolonization is not just a perspective or a metaphor that informs theory, but is deeply unsettling and requires an active dismantling of colonial power and material relations. As researchers situated within Western academic institutions, we have a variety of avenues for engaging in dismantling academic imperialism (Chilisa 2020), including through partnering with Indigenous researchers and practitioners in our research proposals and ensuring that research funds go towards community research needs and supports ongoing emancipatory efforts. Importantly, this work must also translate into material terms such as making communities collaborating in research the holders of project funds.

Another way in which we can be in action is by way of where we move and with whom we engage. In conversation with one of the authors, activist and educator Libby Roderick emphasized that the work of non-Indigenous people within decolonization may sometimes be different from how we imagine it. She offered that an action that is equally important as creating meaningful relationships with Indigenous persons and communities is to foster relationships in our own non-Indigenous groups or communities that allow for productive conversation, connection and healing, while furthering frank and deep assessments of actions needed to restore right relations with Indigenous peoples. She emphasized that without reclaiming our full humanity as and within settler groups, we will never be able to be 'fully human' with others. Fish River Cree scholar Hart et al. (2017, p. 334) share similar thoughts when they write, "Settlers can work in anti-colonial ways by educating members of their own group, challenging overt and covert colonial oppression,

and supporting Indigenous peoples in acts of self-determination". In 'flipping the script' and calling for members of the dominant group to educate ourselves on structural injustice produced by colonization we open space for personal agency in helping to enact decolonial change. Non-Indigenous people may work to embody 'right relations' by fostering relationships within our communities that allow for healthier connections, generative dialogue and teaching/learning practices on inequity and systematic oppressions so that we may collectively work towards a decolonized humanity. Again, in the context of Western research institutions there are literally '100 ways' to engage in this work (Pete 2016). This can include integrating decolonial perspectives in our curricula and organizing teaching and research activities on our campuses that involve Indigenous researchers and practitioners; thus making visible and audible non-dominant voices and bodies within dominant places of knowledge production (Appleton 2019; Pidgeon 2016).

Finally, practices such as land stewardship and the experiential learning of frontline activism are ways of being in action. Many traditional territories across Turtle Island have become sites of decolonial activism in the face of extractive industry. The act of bearing witness to a struggle or more directly, placing one's body within sites of struggle in solidarity, may enact change on a material level. In 2016, Wet'suwet'en matriarch and activist Huson spoke about how the presence of non-Indigenous people impacted the use of police force in the struggle against Coastal GasLink: "If it was just Indigenous people here the police would have come full force, guns and all, and taken us out. But since we had non-Indigenous support they were reluctant to use overt violence because, truthfully, our people are not treated as human" (Gray-Donald 2016, para. 20). The occupation of traditional territories and resistance to extractive industry have also created learning sites where Indigenous peoples can reconnect to their territories and pass on traditional teachings. In the calls for solidarity from allies/supporters these sites have the potential to become spaces where 'right relations' are formed and decolonial ways of creating community can begin to be enacted, however imperfectly. In short, presence matters in affecting transformative change.

Box 4 Knowing land through action, Nicole

Visiting Lelu Island in support of the Lax Kw'alaams Nation's peaceful occupation of their traditional territory opened space for me to gain a deeper understanding of the role of the salmon in Indigenous coastal cultures and land rights activism. A Blackfoot supporter equated the importance of the salmon to Indigenous coastal peoples with that of buffalo for Indigenous peoples from the plains. On the plains, buffalo were purposely killed off as a genocidal tactic. "Think about how different things would be if plains people still had the buffalo," he said. Where he and I had grown up, the relationship between First Nations peoples to the buffalo was taught in school in the manner of a history lesson; something that only exists in museums and provincial parks dedicated to this memory**.** I began to understand then how culturally vital it is that these salmon are protected. Later that week when the tide was out, I and another supporter walked to the eelgrass beds on "Flora Bank," a habitat for juvenile salmon migrating down the Skeena river to acclimatize from freshwater to saltwater before entering the ocean. Bearing witness to this habitat under threat made it so that the struggle for cultural and environmental preservation no longer existed in only the abstract for me. Participating in peaceful occupation of this habitat became a necessary act in embodying my values as a researcher.

Conclusion: informing the 'how' of transformation

Relationality is not just an issue to take into account analytically as we engage climate change transformations. Rather, taking seriously the implications of relationality imply that we strive to embody these qualities as we research and support transformations. Power, resistance and the imagining of alternative futures and ways of being, highlighted by Blythe et al. (2018) as central to transformation, are all at the heart of decolonization efforts. One central aspect of decolonization, however, which these authors have not taken into consideration, is the importance of relationality and how relations are perceived of and engaged with. According to Johnson et al. (2016, p. 3), taking relationality seriously as non-Indigenous researchers means that we need to "learn to see our privilege, our own context, our own deep colonizing. We have to learn to think anew—to think in ways that take seriously and actually respond to information, understanding and knowledges as if difference confronts us with the possibility of thinking differently". Yet 'right relations' does not end with thinking differently but must result in also acting and relating differently.

Thus, embodying 'right relations' is a highly personal endeavor. By invoking this term and exploring how it might be embodied in research, we point to the possibility for and the necessity of researchers to engage with the deeper human dimensions when researching transformations. This includes looking at the intangible, unseen domains of life, such as beliefs, motivations, values, and worldviews (O'Brien and Hochachka 2010). Not only those of 'the researched' but,

importantly, also those of ourselves as researchers. The individual and shared understandings and assumptions about the world influence how we perceive, interpret and construct reality and define what is individually and collectively imaginable, desirable and achievable (O'Brien 2018). This has obvious implications for how we conceptualize and address transformation and its relation to decolonization.

Committing to decolonization requires a process-oriented approach, involving deep listening, self-reflexivity, creating space and being in action, as well as a willingness to engage in discomfort and uncertainty. We argue that these same characteristics apply when working with and researching transformations; that in order for our engagement with the concept and its implementations to be furthering equitable and sustainable results we need to work from a place of 'right relations' and be willing to be transformed in the process. This does not mean that transformation and decolonization are the same, since transformation goes beyond the specific relations between the colonizers and the colonized. Yet, the theorizing and deep reflections from decolonization can provide guiding principles for how to work with transformations. Based on these reflections, we therefore assert that just, equitable and sustainable transformations must include decolonization, and suggest that the concept of 'right relations' can aid in this process.

The work of decolonization and decolonial thinking and being has wide-reaching implications for our current moment, beyond how settler societies relate to Indigenous people. With a global pandemic, a lingering economic crisis, climate change-related disasters, intensified social unrest and profound responses from social movements, the power contained in our relationships to one another and the necessity of dismantling systemic oppression has come clearly into focus. If anything, our current moment shows that transformations are possible. Yet, it also becomes clear that there are numerous pitfalls inherent in transformations, and that the values and visions guiding these processes matter greatly for what outcomes are created. Embodying 'right relations' may offer a productive and generative way forward in all of these contexts. We recognize the importance of staying true to the purpose of decolonization: dismantling the systems of oppression and dispossession of Indigenous peoples. Decolonization is not a metaphor for systems change more broadly but is tied to specific peoples and histories (Tuck and Yang 2012). Yet the concept and practice of 'right relations' not only holds insights for how to generate respectful relations between Indigenous and non-Indigenous peoples, but can help inform a broader notion of how we might relate to all living beings, to the Earth and to ourselves.

The aim of this paper has been to inform the 'how' of transformation by looking through the lens of decolonization and 'right relations' in particular. While these words present our thinking and feeling on the matter, we envision this article as a living document that expresses our commitment to embarking on a journey towards 'right relations'. We hope the article will spark reflection in the reader and we invite comments, critiques and encouragements from Indigenous and non-Indigenous folks alike.

In closing, we would like to echo the call for action made by Mississauga Nishnaabeg scholar Leanne Betasamosake Simpson (2017, p. 9), who encourages us to "join together in a rebellion of love, persistence, commitment, and profound caring and create constellations of co-resistance, working together toward a radical alternative present based on deep reciprocity and the gorgeous generative refusal of colonial recognition." Through such joint work, transformations based on 'right relations' might be possible.

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Compliance with ethical standards

Conflict of interest There is no conflict of interest to report.

References

Adebisi FI (2019) Why I Say 'Decolonisation is impossible'. Folukes Afr. Ski. URL https://folukeafrica.com/why-i-say-decolonisation-is-impossible/. Accessed 24 Nov 2020

Akena FA (2012) Critical analysis of the production of western knowledge and its implications for indigenous knowledge and decolonization. J Black Stud 43:599–619. https://doi.org/10.1177/0021934712440448

Appleton NS (2019) Do not 'Decolonize'... If you are not decolonizing: progressive language and planning beyond a hollow academic rebranding. Crit. Ethn. Stud. URL http://www.criticalethnicstudiesjournal.org/blog/2019/1/21/do-not-decolonize-if-you-are-not-decolonizing-alternate-language-to-navigate-desires-for-progressive-academia-6y5sg. Accessed 24 Nov 20

Ariel C (2017) For our white friends desiring to be allies. Sojourners. https://sojo.net/articles/our-white-friends-desiring-be-allies. Accessed 7 Jan 2020

Armstrong J (1990) The disempowerment of First North American Native Peoples and empowerment through their writing in gatherings. En'Owkin J First N Am Peoples 1:141–147

Baldwin A, Erickson B (2020) Introduction: whiteness, coloniality, and the anthropocene. Environ Plan Soc Space 38:3–11. https://doi.org/10.1177/0263775820904485

Barker AJ (2012) Locating settler colonialism. J Colon Colon Hist. https://doi.org/10.1353/cch.2012.0035

Bawaka Country (including Suchet-Pearson S, Wright S, Lloyd K, Burarrwanga L) (2013) Caring as Country: Towards an ontology of co-becoming in natural resource management. Asia Pac Viewp 54:185–197

Blythe J, Silver J, Evans L, Armitage D, Bennett NJ, Moore M-L, Morrison TH, Brown K (2018) The dark side of transformation: latent risks in contemporary sustainability discourse. Antipode 50:1206–1223. https://doi.org/10.1111/anti.12405

Boler M (1999) Feeling power: emotions and education. Psychology Press

brown am (2017) Emergent strategy: shaping change, changing worlds. AK Press, Chico

Cambridge English Dictionary (2020) Decolonization. Camb Engl Dict

Cameron ES (2012) Securing Indigenous politics: a critique of the vulnerability and adaptation approach to the human dimensions of climate change in the Canadian Arctic. Glob Environ Chang 22:103–114. https://doi.org/10.1016/j.gloenvcha.2011.11.004

Chilisa B (2017) Decolonising transdisciplinary research approaches: an African perspective for enhancing knowledge integration in sustainability science. Sustain Sci 12:813–827. https://doi.org/10.1007/s11625-017-0461-1

Chilisa B (2020) Indigenous research methodologies, 2nd edn. SAGE, London

Collard R-C, Dempsey J, Sundberg J (2015) A manifesto for abundant futures. Ann Assoc Am Geogr 105:322–330. https://doi.org/10.1080/00045608.2014.973007

Coulthard GS (2014) Red skin, white masks: rejecting the colonial politics of recognition. University of Minnesota Press, Minneapolis

Cruikshank J (1990) Life lived like a story: life stories of three Yukon Native elders. University of Nebraska Press, Lincoln

Cruikshank J (2000) Social life of stories: narrative and knowledge in the Yukon territory. UBC Press, Vancouver

Davis H, Todd Z (2017) On the importance of a date, or, decolonizing the anthropocene. ACME Int J Crit Geogr 16:761–780

Denzin NK, Lincoln YS, Smith LT (2008) Handbook of critical and indigenous methodologies. SAGE, New York

Dhillon J (2018) Introduction: indigenous resurgence, decolonization, and movements for environmental justice. Environ Soc 9:1–5. https://doi.org/10.3167/ares.2018.090101

Donald D (2012) Forts, Curriculum, and Ethical Relationality. In: Ngafook N, Rottmann J (eds) Reconsidering Canadian curriculum studies: provoking historical, present, and future perspectives, curriculum studies worldwide. Palgrave Macmillan, US, New York, pp 39–46. https://doi.org/10.1057/9781137008978_3

Eriksen S, Schipper ELF, Scoville-Simonds M, Vincent K, Adam HN, Brooks N, Harding B, Khatri D, Lenaerts L, Liverman D, Mills-Novoa M, Mosberg M, Movik S, Muok B, Nightingale A, Ojha H, Sygna L, Taylor M, Vogel C, West JJ (2021) Adaptation interventions and their effect on vulnerability in developing countries: help, hindrance or irrelevance. World Dev 141:105383. https://doi.org/10.1016/j.worlddev.2020.105383

Feola G (2015) Societal transformation in response to global environmental change: a review of emerging concepts. Ambio 44:376–390. https://doi.org/10.1007/s13280-014-0582-z

Gerlach A (2018) Thinking and researching relationally: enacting decolonizing methodologies with an indigenous early childhood program in Canada. Int J Qual Methods 17:1609406918776075. https://doi.org/10.1177/1609406918776075

Gibson-Graham JK, Roelvink G (2010) An economic ethics for the anthropocene. Antipode 41:320–346. https://doi.org/10.1111/j.1467-8330.2009.00728.x

Golden DM, Audet C, Smith MA (2015) "Blue-ice": framing climate change and reframing climate change adaptation from the indigenous peoples' perspective in the northern boreal forest of Ontario, Canada. Clim Dev 7:401–413. https://doi.org/10.1080/17565529.2014.966048

Gram-Hanssen I (2019) The role of flexibility in enabling transformational social change: perspectives from an Indigenous community using Q-methodology. Geoforum 100:10–20. https://doi.org/10.1016/j.geoforum.2019.02.001

Gray-Donald D (2016) No consent, no pipelines: resistance at Unist'ot'en. The Dominion. http://dominion.mediacoop.ca/story/no-consent-no-pipelines-resistance-unisttoen/36179. Accessed 21 Jun 2020

Haig-Brown C, Dannemann K (2002) A pedagogy of the land: dreams of respectful relations. McGill J Educ 37

Hart MA, Straka S, Rowe G (2017) Working across contexts: practical considerations of doing indigenist/anti-colonial research. Qual Inq 23:332–342. https://doi.org/10.1177/1077800416659084

IPCC (2014) Climate Change 2014: synthesis report of the fifth assessment report of the intergovernmental panel on climate change. Cambridge

Johnson JT, Howitt R, Cajete G, Berkes F, Louis RP, Kliskey A (2016) Weaving indigenous and sustainability sciences to diversify our methods. Sustain Sci 11:1–11. https://doi.org/10.1007/s11625-015-0349-x

Kanngieser A, Todd Z (2020) From environmental case study to environmental kin study. Hist Theory 59:385–393

Kates RW, Travis WR, Wilbanks TJ (2012) Transformational adaptation when incremental adaptations to climate change are insufficient. Proc Natl Acad Sci 109:7156–7161. https://doi.org/10.1073/pnas.1115521109

Kimmerer RW (2013) Braiding Sweetgrass—Indigenous wisdom, scientific knowledge and the teachings of plants. Milkweed eds

King T (1990) All my relations: an anthology of contemporary canadian native fiction. McClelland & Stewart

Klenk N, Fiume A, Meehan K, Gibbes C (2017) Local knowledge in climate adaptation research: moving knowledge frameworks from extraction to co-production: Local knowledge in climate adaptation research. Wiley Interdiscip Rev Clim Change 8:e475. https://doi.org/10.1002/wcc.475

Kovach M (2010) Indigenous methodologies: characteristics, conversations, and contexts. University of Toronto Press

Kuokkanen R (2007) Reshaping the university: Responsibility, Indigenous epistemes and the logic of the gift. UBC Press, Vancouver

Landry, A., 2018. Decolonization And Indigenization Will Not Create The Change We Need. Indig. Mother. URL https://indigenousmotherhood.wordpress.com/2018/01/11/decolonization-and-indigenization-will-not-create-the-change-we-need/. Accessed 14 Dec 2020

Moreton-Robinson A (2004) The possessive logic of patriarchal white sovereignty: the High Court and the Yorta Yorta decision. Borderl E J 3:1–9

Nightingale AJ, Eriksen S, Taylor M, Forsyth T, Pelling M, Newsham A, Boyd E, Brown K, Harvey B, Jones L, Kerr RB, Mehta L, Naess LO, Ockwell D, Scoones I, Tanner T, Whitfield S (2019) Beyond technical fixes: climate solutions and the great derangement. Clim Dev. https://doi.org/10.1080/17565529.2019.1624495

O'Brien K (2012) Global environmental change II: From adaptation to deliberate transformation. Prog Hum Geogr 36:667–676. https://doi.org/10.1177/0309132511425767

O'Brien K (2018) Is the 1.5 °C target possible? Exploring the three spheres of transformation. Curr Opin Environ Sustain Sustain Gov Transform 31:153–160. https://doi.org/10.1016/j.cosust.2018.04.010

O'Brien K (2020) You matter more than you think: quantum social change in response to a world in crisis, unpublished manuscript. ed. AdaptationCONNECTS, University of Oslo

O'Brien K, Hochachka G (2010) Integral adaptation to climate change. J Integral Theory Pract 5:89–102

Parsons M (2014) Continuity and change. In: Palutikof JP, Boulter SL, Barnett J, Rissik D (eds) Applied studies in climate adaptation. John Wiley & Sons Ltd, Hoboken, pp 281–288

Parsons M, Nalau J (2016) Historical analogies as tools in understanding transformation. Glob Environ Chang 38:82–96. https://doi.org/10.1016/j.gloenvcha.2016.01.010

Pearson L (2020) Australia is built on lies, so why would we be surprised about lies about climate change? Luke Pearson for IndigenousX. The Guardian

Pelling M, O'Brien K, Matyas D (2015) Adaptation and transformation. Clim Change 133:113–127. https://doi.org/10.1007/s10584-014-1303-0

Pete S (2016) 100 Ways: indigenizing & decolonizing academic programs. Aborig Policy Stud. https://doi.org/10.5663/aps.v6i1.27455

Pidgeon M (2016) More than a checklist: meaningful indigenous inclusion in higher education. Soc Incl 4:77–91. https://doi.org/10.17645/si.v4i1.436

Porter L, Rickards L, Verlie B, Bosomworth S, Moloney S, Lay B, Latham B, Anguelovski I, Pellow D (2020) Climate justice in a climate changed world. Plan Theory Prac 21:313–321. https://doi.org/10.1080/14649357.2020.1748959

Pugh C (2020) There is no such thing as a 'white ally'. Hum. Parts. https://humanparts.medium.com/there-is-no-such-thing-as-a-white-ally-469bb82799f2. Accessed 1 Aug 2020

Regan P (2010) Unsettling the settler within: Indian residential schools, truth telling, and reconciliation in Canada. UBC Press, Vancouver

Reo NJ, Parker AK (2013) Re-thinking colonialism to prepare for the impacts of rapid environmental change. Clim Change 120:671–682. https://doi.org/10.1007/s10584-013-0783-7

Ritenburg H, Leon AEY, Linds W, Nadeau DM, Goulet LM, Kovach M, Marshall M (2014) Embodying decolonization: methodologies and indigenization. Altern Int J Indig Peoples 10:67–80. https://doi.org/10.1177/117718011401000107

Romm NRA (2015) Reviewing the transformative paradigm: a critical systemic and relational (Indigenous) lens. Syst Pract Action Res 28:411–427. https://doi.org/10.1007/s11213-015-9344-5

Rosiek JL, Snyder J, Pratt SL (2020) The new materialisms and indigenous theories of non-human agency: making the case for respectful anti-colonial engagement. Qual Inq 26:331–346. https://doi.org/10.1177/1077800419830135

Ross R (2014) Indigenous healing: exploring traditional paths. Penguin, Canada

Scoville-Simonds M, Jamali H, Hufty M (2020) The hazards of mainstreaming: climate change adaptation politics in three dimensions. World Dev 125:104683. https://doi.org/10.1016/j.worlddev.2019.104683

Simpson LB (2014) Land as pedagogy: Nishnaabeg intelligence and rebellious transformation 25

Simpson LB (2017) As we have always done: indigenous freedom through radical resistance. University of Minnesota Press, Minneapolis

Sium A, Desai C, Ritskes E (2012) Towards the'tangible unknown': decolonization and the indigenous future. Decolonization Indig Educ Soc 1

Smith LT (2013) Decolonizing methodologies: research and indigenous peoples. Zed Books Ltd., London

Spivak GC (1988) Can the subaltern speak? In: Nelson G, Grossberg L (eds) Marxism and the interpretation of culture. Macmillan, London, pp 271–313

Stirling A (2015) Emancipating transformations: from controlling 'the transition' to culturing plural radical progress. In: Scoones I, Leach M, Newell P (eds) The politics of green transformations. Earthscan, London, pp 54–67

Todd Z (2016) An indigenous feminist's take on the ontological turn: 'ontology' is just another word for colonialism. J Hist Sociol 29:4–22. https://doi.org/10.1111/johs.12124

Tuck E, Yang KW (2012) Decolonization is not a metaphor. Decolonization Indig Educ Soc 1:1–40

Watts V (2013) Indigenous place-thought and agency amongst humans and non humans (First woman and sky woman go on a european world tour!). Decolonization Indig Educ Soc 2:20-34

Whyte K (2017) Indigenous climate change studies: indigenizing futures, decolonizing the anthropocene. Engl Lang Notes 55:153–162. https://doi.org/10.1215/00138282-55.1-2.153

Whyte K (2020) Too late for indigenous climate justice: ecological and relational tipping points. WIREs Clim Change 11:e603. https://doi.org/10.1002/wcc.603

Wildcat DR (2009) Red alert! saving the planet with indigenous knowledge. Fulcrum, Golde

Wilson S (2001) What is indigenous research methodology? Can J Native Educ Edmont 25:175–179

Wilson S (2008) Research is ceremony: indigenous research methods. Fernwood Publishing, Nova Scotia

Wilson S (2016) Using indigenist research to shape our future. In: Gray M, Coates J, Yellow Bird M, Hetherington T (eds) Decolonizing social work. Routledge, New York, pp 311–322

Zanotti L, Ma Z, Johnson J, Johnson D, Yu DJ, Burnham M, Carothers C (2020) Sustainability, resilience, adaptation, and transformation: tensions and plural approaches. Ecol Soc. https://doi.org/10.5751/ES-11642-250304