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Indigenous Research Methodologies: Challenges and Opportunities for Broader Recognition and Acceptance

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Abstract

The Western scientific worldview is assumed to be universally applicable, including to research involving peoples with different worldviews. Even in the social sciences, which should be more aware of and open to diverse ontologies, epistemologies, and axiologies, Western science is privileged and reproduced and other ways of knowing are dismissed, denigrated, or otherwise treated as inferior. In particular, the use of culturally inappropriate data collection, analysis, and reporting processes has contributed to an increasingly contentious relationship with Indigenous peoples. Indigenous student and faculty researchers understandably experience both internal and external conflict when trying to perform Indigenous research in a way that respects Indigenous cultural expectations while also satisfying the requirements of Western gatekeepers. Indigenous research methodologies reflect the Indigenous worldview and provide an important alternative to the dominant positivist/postpositivist paradigm of Western science to produce research that is by, with, and for Indigenous peoples. Indigenous methodologies approach community and cultural protocols, values, and needs as an integral part of research, and they emphasize common principles of respect, reciprocity, relevance, and responsibility. We believe broader recognition and acceptance of Indigenous methodologies would benefit all stakeholders, and, in furtherance of that goal, we identify structural, ideological, process-related, and results-related challenges and opportunities that should be considered as Indigenous methodologies are developed and employed.

Keywords

Indigenous Methodologies, Indigenous, Native, Epistemology, Research,

Worldview

1. Introduction

This paper identifies and examines challenges and opportunities for broader recognition and acceptance of Indigenous research methodologies (IMs) within Western institutions and by Western scholars, especially in the social sciences and with regard to the study of Indigenous peoples. Existing critiques are often limited to strawman arguments (e.g., Atkinson & Ryen, 2016) or are dismissive or even denigrating of IMs and the Indigenous worldview (e.g., Gone, 2017, 2019) and desperately defensive of Western science. These critiques often seek to either reject IMs or coopt them into Western paradigms rather than constructively develop them to be independent and coequal. Further, they typically approach the issue as involving "problems" that IMs must fix in order to satisfy Western standards for knowledge production. We approach the issue as involving challenges and opportunities that require compromise on both sides so that all can benefit from the strengths of diverse perspectives.

Structural challenges include a lack of mentors and limits on eligible researchers, data, and subject matter. Ideological challenges include the overt politicization of research and difficulty achieving buy-in by participating Indigenous communities. Process challenges regarding how research is performed include a lack of well-defined and evaluatable procedures, non-universalizability and subjectivity, control over the research process, different data collection methods, relational complexity, the requirement to learn an Indigenous language, and the use of oral testimony as data. Results challenges regarding how results are generated and reported or not include a lack of objective criteria for evaluating results, control over the results process, including interpreting data and characterizing results, and the requirement to benefit, including compensating participants. We believe it is in the long-term interest of Indigenous peoples for IMs to achieve broader recognition and acceptance. For most of these challenges and opportunities, this largely depends on avoiding extreme positions on both sides and achieving balances that are reasonable and acceptable to all stakeholders. Some of these challenges, if properly addressed, provide opportunities for IMs to be more rigorous and effective than Western paradigms in researching Indigenous peoples. Further, we believe that there is an opportunity in not limiting IMs to researching only Indigenous peoples. The relation, respect, reciprocity, and responsibility principles of IMs similarly apply to other minority peoples with sufficiently distinct cultures or subcultures for which the approaches and assumptions of Western research paradigms are not appropriate or conducive to maximizing success in research relationships and results. This paper resulted from a larger project that involved interviewing Indigenous student and faculty researchers, and we include herein some of the most relevant interview material (identified by inter-

viewee number and year, with some interviewees having been interviewed multiple times over multiple years).

Some readers may be unfamiliar or uncomfortable with and perhaps not see the value in research paradigms other than the positivist/postpositivist approach of Western science. A visceral and often hyperbolic defensiveness of science, which is frequently on display in critiques of IMs, only underscores the importance of our work. Given the fundamental importance of science to Western identity and its notion of cultural superiority, our critique of science and elevation of other ways of knowing may be received by some as the worst form of cultural heresy. Like many, we were indoctrinated from an early age into the importance and superiority of science, and we are, to an extent, personally and professionally invested in the usefulness of science to answer certain kinds of questions, so we understand the reflex to defend it. Nevertheless, it is important that the reader override this reflex and approach this work with an open mind.

For example, anthropologists who believe that their discipline has particularly good relations with Indigenous peoples may reflexively reject the claim by some Indigenous writers that anthropology represents all that is truly bad about research (e.g., Semali & Kincheloe, 1999; Smith, 2012). In fact, a White, male professor of cultural anthropology commenting on this work simply rejected as "unfactual" and "inaccurate" all negative statements about anthropology by Indigenous writers. However, *the fact* that some anthropologists disagree with these negative perceptions does not change *the fact* that some Indigenous writers have them. Some non-Indigenous gatekeepers, such as this professor, abuse their power and privilege to control the discourse to support their preferred narratives and to suppress perspectives that challenge them. In that light, our work begins with the assertion that those in power do not get to unilaterally determine for the oppressed what is factual and accurate. The oppressed have their own perspectives based on their own lived experiences, and their perspectives must be acknowledged, not reflexively and defensively dismissed, if conflicts in education and research between the Western scientific worldview and the Indigenous worldview are to be addressed.

2. Research Frameworks

Because science so dominates the Western worldview that few student and faculty researchers are likely aware that other approaches exist, a brief discussion of research frameworks may be helpful. The highest level of the research framework is the research paradigm which reflects particular ontological, epistemological, and axiological positions (Kivunja & Kuyini, 2017) and so can be characterized as a researcher's "worldview" (MacKenzie & Knipe, 2006; Shipley & Williams, 2019). There is disagreement about the number of research paradigms, but many scholars recognize at least four: positivist/postpositivist, interpretivist, transformative, and pragmatic, and some have argued for IMs to be recognized as a distinct fifth paradigm (e.g., Chilisa, 2020). The positivist paradigm asserts

that, ontologically, there is an independent and objective reality that can be known; epistemologically, knowledge is a statement of belief that can be empirically tested and verified or falsified; and axiologically, research should be free from normative influence (or "value-free"), and the purpose of research is to establish generally applicable theories of cause and effect that can be used to reliably predict future outcomes. "Postpositivism" recognizes that absolute certainty is impossible and observation is fallible and influenced by researchers' ignorances and biases, but still claims that a high degree of certainty and objectivity is possible through careful and multiple observations. The positivist/postpositivist paradigm is colloquially referred to as "the scientific method."

The next level of the conceptual framework is the research methodology which defines the particular approach to research within the chosen research paradigm. Methodology is important because it frames the research question, determines the nature of the data to be collected, and shapes the analysis and ultimate conclusions (Smith, 2012). The scientific methodology is the only acceptable methodology under the positivist/postpositivist paradigm, and it locates the researcher apart from and neutral toward the subject of inquiry. The lowest level of the conceptual framework is the research method which details the way in which data is collected and analyzed under the methodology. Methods can be quantitative, qualitative, or mixed in nature.

For scientists *qua* scientists, positivism/postpositivism is the *only* valid and reliable research paradigm, the scientific methodology is the *only* valid and reliable methodology, and quantitative data is the *only* acceptable data for generating knowledge (Chilisa, 2020). As a result, many scientists never have reason or opportunity to more fully understand and appreciate the strengths of other paradigms, methodologies, and methods. It is strong evidence of the pervasiveness of the Western scientific worldview in education and research that the scientific methodology and quantitative methods are often simply assumed to be required—as if by definition—of *all* research, even though other very different research paradigms, methodologies, and methods exist. The positivism/postpositivism paradigm is so enshrined and reproduced, even fetishized, within Western culture that it is the *de facto* standard in research. Other ways of knowing, particularly the Indigenous paradigm, colloquially referred to as "Indigenous methodologies," are marginalized and denigrated (Kovach, 2009). Western institutions and scholars alone determine what is "valid" research (Swadener & Mutua, 2008), and, like the cultural anthropologist mentioned above, they are formidable gatekeepers of their "Ivory Fortress" and vociferous defenders of their privilege in controlling the discourse.

3. Western Research and Indigenous Peoples

Western research assumes ownership of the entire world, and Western researchers set the agenda and construct the rules by which Indigenous peoples are theorized, investigated, and reported (Edwards et al., 2020; Smith, 2012). This assumption pervades institutional practices that determine what is knowledge, what

qualifies as legitimate research, who qualifies as legitimate researchers, and what are acceptable research questions and answers (Edwards et al., 2020; Smith, 2012). Western researchers assume that the Western scientific worldview is universally applicable, and so the colonially-established superiority of Western epistemology is privileged and reproduced through a regime of acceptable practice and conduct in research (Chilisa, 2020). However, the Western scientific worldview is not always appropriate or effective for properly studying and understanding Indigenous peoples who have a very different worldview (Shipley & Williams, 2019). Chilisa (2020) characterized as a form of imperialism the unjustified and ultimately counterproductive tendency among Western scholars to dismiss, denigrate, and work to quash alternative perspectives and approaches. The ongoing rejection of Indigenous research perspectives and approaches evidences the continuing colonial nature of the academy, which makes "research a significant site of struggle between the interests and ways of knowing of the West and the interests and ways of resisting of [Indigenous peoples]" (Smith, 2012: p. 2).

As a result, Western research has a "heinous reputation" and a "miserable history" in Indigenous communities (Kovach, 2009: pp. 13, 24), and "[t]he word itself, 'research,' is probably one of the dirtiest words in the [I]ndigenous world's vocabulary" (Smith, 2012: p. 1). Indigenous peoples experience research as a form of hegemony in which they are described and judged by outsiders (Nakagawa, 2017). For many Indigenous peoples, "[t]he term 'research' is inextricably linked to European imperialism and colonialism" (Smith, 2012: p. 1; see also Kovach, 2009) and has a long record of harm and oppression (Windchief, 2018). "As agents of colonial power, Western scientists discovered, extracted, appropriated, commodified, and distributed knowledge about the [I]ndigenous other" (Denzin & Lincoln, 2008b: p. 5). Smith (2012: p. x) characterized research institutions as "colonizing institutions of knowledge" and Indigenous peoples as "colonized peoples whose own knowledge was subjugated." "The ways in which scientific research is implicated in the worst excesses of colonialism remains a powerful remembered history for many of the world's colonized peoples" (Smith, 2012: p. 1). Writing from an African perspective, Chilisa (2020: p. 7) used the term "[s]cientific colonialism" to describe the production of knowledge in social science research that involves the imposition of the positivist/postpositivist paradigm on colonized and other historically oppressed groups.

In particular, "[m]any Indigenous writers would point to anthropology as representative of all that is truly bad about research" (Smith, 2012: p. 11; see also Semali & Kincheloe, 1999). "The ethnographic 'gaze' of anthropology has collected, classified, and represented other cultures to the extent that anthropologists are often the academics popularly perceived by the [I]ndigenous world as the epitome of all that is bad with academics" (Smith, 2012: p. 70). Through their research, colonizers establish themselves as authorities on Indigenous cultures, though Indigenous peoples are not consulted on the researchers' interpretations of the data and are often shocked to read final reports that depict their cultures as barbaric or inhuman (Chilisa, 2020). The resulting body of biased literature

then becomes the point of reference for legitimizing new knowledge, and so the initial literature review perpetuates old bad colonial research and provides a rotten foundation for new bad colonial research (Chilisa, 2020). Despite some progress in recent years, it is still the perception of many Indigenous communities that research exploits Indigenous peoples and their culture, knowledge, and resources without benefit or any sense of responsibility by the researchers (Smith, 2012). Without change, "[t]he doors previously open for doing research on an Indigenous community in the name of science [are] closing. And very soon, these doors will be shut for good" (Toombs, 2016: p. 9; see also Louis, 2007).

4. Indigenous Researchers

Relatively few Indigenous persons successfully negotiate Western science education and become researchers (Williams & Shipley, 2018), and those who do often experience conflict between the Western scientific worldview of their departments and disciplines and the Indigenous way of learning and knowing of their communities and cultures. In Western science, only metaphysically-exclusive data are valued, and they are collected through reductionistic processes (Shipley & Williams, 2019) in an approach to knowledge production that reflects the Western industrial model of resource extraction (Marker, 2004). For Indigenous persons, the process of becoming and being a researcher is a complex negotiation between accommodating and resisting assimilation into the Western scientific worldview (Solot & Arluke, 1997).

The practice of dissection exemplifies the assimilation process. Requiring students to dissect is an important rite-of-passage for initiates into the so-called "life sciences" (Solot & Arluke, 1997). The assimilation process begins with mild manipulations of animals in elementary school experiments and progresses to dissections of less familiar animals in middle and high school, to dissections of more complex and familiar animals in college, and ultimately to dissections of human cadavers (Solot & Arluke, 1997). Along the way, students are forced to cope by increasingly redefining the nature of living things to be nothing more than the sum of their biological parts (Solot & Arluke, 1997). Most importantly, students learn that objectivity and detachment is the only model for understanding the physical world, and empathy, sentimentality, and other emotions are to be suppressed as threats to objectivity (Keller, 1985; Solot & Arluke, 1997). Through this and similar processes, schools work to assimilate all students into the Western scientific worldview in which all things are mere collections of discrete physical components with mechanistic functions and strictly utilitarian value (Solot & Arluke, 1997).

For many Indigenous peoples, Western science education comes with a particularly high cultural cost. It can be extremely difficult for Indigenous students to achieve educational goals while maintaining cultural identity in a setting "dominated by powerful and persuasive influences of the…majority culture" (Harrington & Hunt, 2010: p. 2). Educational assimilation is "at best, a hostile

act," and "resisting [it] is especially risky and often tiresome for those who pursue [graduate degrees]" (Lowery, 1997: p. 1). Indigenous researchers are expected by their non-Indigenous peers, departments, and disciplines to adopt the Western scientific worldview and perform Western science (Lamsam, 2014). In that light, the process of becoming an Indigenous researcher can be "an intensely personal and challenging journey—a significantly important journey of sovereignty, resistance, and self-determination" (Rydera et al., 2020: pp. 256-257; see also Lamsam, 2014).

Indigenous students and faculty often experience a great deal of internal and external tension when attempting to perform research in a way that respects traditional ways of knowing while still satisfying Western expectations about how research ought to be conducted (Kovach, 2009; Marker, 2004). "It is exceedingly difficult to make Indigenous knowledge, which is place- and experience-based, relevant in an academy that exalts the most abstract and placeless theories about reality," and Indigenous ways of knowing inevitably collide with the Western paradigm of disconnecting the physical aspects of things from their metaphysical aspects (Marker, 2004: pp. 107-108). Even when Indigenous researchers study their own communities they are expected to do so within the norms of the Western scientific tradition (Nakagawa, 2017; Rigney, 1999) and using Western ideas, lenses, and tools even when engaging with culturally-specific issues (Kovach, 2009). For example, an interviewee (No. 4, 2020) stated, "You will hear people say…leave your culture and identity in the hallway, we do science in the lab."

Chilisa (2020) encouraged the next generation of researchers to do their work without perpetuating self-serving Western research paradigms that present Western ways of knowing as superior to Indigenous ways of knowing. Importantly, there is growing pressure on departments and disciplines to acknowledge these issues and create space for research based on relational ontologies, epistemologies and axiologies associated with Indigenous peoples (Chilisa, 2020).

5. The Need for Indigenous Methodologies

Many Indigenous peoples recognize that for their cultural knowledge to survive and thrive it must live in many places, including institutions of education and research (Kovach, 2009). However, conducting research, interpreting findings, and presenting those findings inherently involves a power dynamic that must be challenged (Kovach, 2009). In that light, "The choosing of a [research paradigm] is a political act" (Kovach, 2009: p. 53), and the choice to use an Indigenous methodology "[is] an exercise of power" (Brayboy, 2018: p. xi). "[I]ndigenous voices in research cannot be enabled by benevolent [W]estern practices alone" (Botha, 2011: p. 315), because even when Western institutions seem to accommodate Indigenous knowledge they do so on Western terms such that it is the Western worldview that is perpetuated (Morgan, 2003). Seeking legitimacy through Western norms merely reproduces Western social, economic, and political privilege, so Indigenous researchers, both students and faculty, need their

own research paradigm that allows them to openly engage within the academy (Gaudry, 2011; Kovach, 2009). There is an important distinction "between having an Indigenous perspective within a [W]estern research paradigm and doing research methodologies within an Indigenous worldview/paradigm" (Absolon, 2011: p. 30), and many have argued for employing a truly Indigenous research paradigm (Wilson, 2001). This does not seem like an aggressive or threatening position to us, but the above-mentioned professor of cultural anthropology shockingly characterized the desire to emphasize the Indigenous perspective rather than merely include it within a Western approach as "ethnic cleansing" of non-Indigenous researchers.

"When Indigenous people become the researchers and not merely the researched, the activity of research is transformed. Questions are framed differently, priorities are ranked differently, problems are defined differently, and people participate on different terms" (Smith, 2021: p. 250). IMs enable and empower Indigenous peoples to take control over their own search for knowledge (Absolon, 2011; Talbot, 2002). Employing IMs critically engages the colonial power of the academy and begins decolonizing knowledge production (Morgensen, 2012). In the context of research, decolonization involves giving space to the worldviews of those who have suffered marginalization and oppression and empowering them to join the discourse using their own frames of reference (Chilisa, 2020). Importantly, decolonizing research is not about the total rejection of Western theory, research, or knowledge, it is about changing focus, balancing worldviews, and allowing Indigenous researchers to develop their own perspectives for their own purposes (Toombs, 2016). Indigenous peoples want to transform research into an instrument for creating and disseminating knowledge that represents them and their understandings of the world (Castellano, 2014; Peltier, 2018). IMs accomplish this by centering Indigenous ontologies, epistemologies, and axiologies (Louis, 2007; MacDonald, 2017; Smith, 2012).

6. The Nature of Indigenous Methodologies

IMs are a distinct approach based on the Indigenous worldview, which is, at least in some ways, very different from the Western worldview (Absolon, 2011; Chilisa, 2020; Kovach, 2009; Romm, 2015; Shipley & Williams, 2019; Wilson, 2001, 2008). IMs produce research that is by, with, and for Indigenous peoples, "using techniques and methods drawn from the traditions and knowledges of those peoples" (Denzin & Lincoln, 2008a" p. x; see also MacDonald, 2017; Wilson, 2008). Although each Indigenous methodology includes community-specific and even researcher-specific elements, all IMs share certain common elements. Broadly, they approach community and cultural protocols, values, and needs as an integral part of research and not as irrelevant or obstacles to research.

The literature on IMs overwhelmingly emphasizes common principles of respect, reciprocity, relevance, and responsibility (Keene, 2018; Kirkness & Barnhardt, 1991; Louis, 2007; Peltier, 2018; Pidgeon, 2018; Thomas & Spang, 2021;

Wilson, 2001, 2008, 2013; Woods, 2009), as well as resistance, resilience, resurgence, restoration, and repatriation (Brayboy, 2018), so that Indigenous research is done respectfully, ethically, sympathetically, and benevolently (Olsen, 2017). Having said that, the development of IMs is still in a relatively early stage and the varying positions discussed below reflect an ongoing debate to determine direction and content. The development and employment of IMs is an aspect of the struggle for "intellectual sovereignty," and "the definition and articulation of what that means [should be allowed] to emerge as we critically reflect on that struggle" (Warrior, 1995: p. 98). IMs are, by definition, "Indigenous-centered," and this centering is the distinguishing strength of IMs even as it creates challenges both for Westerners and Indigenous peoples.

7. Challenges and Opportunities for Broader Recognition and Acceptance

Currently, IMs are not widely recognized or accepted and so are not an option for most researchers. Our goal is to provide a more comprehensive identification of challenges, including structural, ideological, process, and results challenges, than is currently available while also identifying opportunities to further the development of IMs so that they become a more widely available option. Again, we do not refer to or view these challenges as "problems" because that would entail privileging Western research paradigms and judging IMs based on the Western scientific worldview. Nevertheless, for broader acceptance and recognition to occur, the development of IMs must take these challenges into account. Importantly, many of these challenges also present opportunities for better relationships, increased rigor, and more accurate data.

7.1. Structural Challenges

7.1.1. Lack of Mentors

Currently, there are not enough Indigenous or allied faculty members, grant reviewers, and journal editors able and willing to challenge Western research paradigms. Indigenous researchers, especially graduate students, often lack mentors able to explain, guide, and advocate for the use of IMs from within institutions. The few Indigenous faculty that are available to serve as mentors are often already inundated with extra work and additional duties because institutional initiatives, questions, and challenges associated with Indigenous issues are often automatically directed to them (Thomas & Spang, 2021). Without mentors to advocate for them, IMs will often be dismissed as irrelevant, denigrated as unscientific, and relegated to the periphery of knowledge production by Western gatekeepers (Kovach, 2009). As a result, Indigenous student researchers often have to deal "with unsupportive and even antagonistic committee members" by themselves (Absolon, 2011: p. 151). Indigenous student and faculty researchers encounter a highly conditioned environment they must carefully navigate in order to perform their work (Davis et al., 2008), and "many of [them] have to engage in near confrontational evaluations of [their] work" (Louis, 2007: p. 137).

Those challenging the universal superiority of Western science are often intellectually marginalized (Kovach, 2009; Urion et al., 1995), and labeled as "oppositional," "political," "radical," and "emotional" (Mihesuah, 1998: p. x). Indigenous researchers, especially students, should not have to face this, at least not alone. Thus, the lack of mentors supporting and advocating for IMs is a challenge to greater recognition and acceptance, but, of course, greater recognition and acceptance is key to producing more mentors.

7.1.2. Limits on Eligible Researchers

Some advocates for IMs have asserted that "IMs do not privilege Indigenous researchers because of their Indigeneity," so they can be used by both Indigenous and non-Indigenous persons (Louis, 2007: p. 130). Relatedly, an opportunity exists for research partnerships with non-Indigenous researchers that would increase exposure to and respect for Indigenous approaches (Edwards et al., 2020), and potentially result in more allies and mentors. Others assert that only Indigenous persons should employ IMs and study Indigenous communities and cultures. Several interviewees (e.g., No. 28, 2022) did not agree with this more restrictive position: "I don't agree with that at all. It's like telling me I can't be a feminist because I'm not a woman." Further, "there is so much need that tribes have, and if we're just going to rely on the handful of Native scientists with training to do that work, then there's a whole lot of work…that's going to go undone" (No. 18, 2022). However, as another interviewee (No. 15, 2022) asserted, understanding the Indigenous worldview requires understanding the language, the cultural practices, and the ceremonies, and that level of understanding is not available to outsiders. Advocates for limiting IMs to Indigenous researchers acknowledge the potential problems but assert that Indigenous persons are best able to provide "culturally safe environments" for research on Indigenous peoples (Toombs, 2016: p. 9; Williams, 1999).

For the most extreme advocates, it is not enough that the researcher is Indigenous or even that they are a member of the community of interest. To them, "many Indians, especially 'New Indians,' are not always knowledgeable about their tribes' histories and cultures…[M]any of these Indians do not even know to which tribe they belong and were not raised with a tribal connection. What sort of Indian voice is this?" (Mihesuah, 1998: pp. 11-12). For these advocates, properly employing an Indigenous methodology and studying an Indigenous community requires that the researcher be a member of the community, speak the language, and have a deep understanding of the culture (Champagne, 2015). However, as one interviewee (No. 28, 2022) noted, "That rules out ninety-nine percent of Native Americans."

Limiting IMs for use only by Indigenous persons provides fodder for essentialist arguments (Louis, 2007), unduly limits the number of mentors, and severely limits the amount of research that can be accomplished. It seems likely that a stronger connection to and understanding of the community of interest results in better research and results, but extreme limits on researchers eligible to

employ IMs would create a considerable challenge to greater recognition and acceptance. Further, the principles of IMs can and should be expected of all researchers who work with Indigenous peoples.

7.1.3. Limits on Eligible Data

IMs are often assumed to be limited to qualitative methods and data and to generating conclusions that are not based on quantification or statistical analysis. "Qualitative data has been embraced almost to the exclusion of the quantitative in Indigenous research. This is not surprising, given very troubling relationships between Indigenous [peoples] and the culture of Western science…" (Juutilainen et al., 2019: p. 142). In particular, Western scientific quantitative research has almost exclusively focused on Indigenous difference, disparity, disadvantage, dysfunction, and deprivation (Juutilainen et al., 2019; Walter, 2016; Walter & Suiza, 2019). This has resulted in a general belief that qualitative approaches are appropriate for IMs and quantitative approaches are not (Walter, 2005; Walter & Andersen, 2013; Walter & Suina, 2019).

However, at least some advocates reject limiting IMs to only qualitative methods (Nakagawa, 2017; Walter, 2005). In particular, excluding quantitative methods and data from IMs limits their ability to inform policy decisions that impact Indigenous peoples' lives and interests (Juutilainen et al., 2019; Walter & Suina, 2019; Walter & Andersen, 2013). Limiting IMs to only qualitative data and excluding quantitative data from eligibility would create a challenge to greater recognition and acceptance as well as severely limit their usefulness in accomplishing beneficial change. Indigenous ontologies, epistemologies, and axiologies can and should be applied to quantitative data in the same manner they are applied to qualitative data.

7.1.4. Limits on Eligible Subject Matter

Research by non-Indigenous "experts" is often of no practical benefit to Indigenous peoples and sometimes even seriously damaging, insensitive, intrusive, and/or exploitative (Toombs, 2016). Further, research frequently documents the "problems" experienced by Indigenous communities without any real effort to develop or implement solutions (Toombs, 2016). As a result, many assert that "[t]he primary focus of IMs and research should center on the issues and concerns of Indigenous nations or peoples" (Champagne, 2015: p. 57), and what is acceptable to research should be determined and defined by the community (Denzin & Lincoln, 2008b). In particular, "Indigenous research must make a difference in people's lives, not as an afterthought or as a separate applied step, but as a function of the entire research process" (Wulff, 2010: p. 1291).

Other advocates take this requirement further. For example, Champagne (2015: p. 57) asserted, "Just as mainstream-supported research serves the goals and interests of nation-states, Indigenous studies should foster the goals and values of Indigenous governments, nations, and communities." To us, this is a strange claim that needed more explanation. It is certainly true that governments

pursue and fund certain research and decline other research, though Champagne provided no evidence that governments fund only research that serves national goals and interests. Further, a great deal of "mainstream-supported" research is funded by non-governmental public and private entities that have their own goals and interests, and it is unclear whether Champagne meant to include this research in their claim as well.

Still others take this requirement to the extreme, arguing that "[i]f research does not benefit the community by extending the quality of life for those in the community, it should not be done" (Louis, 2007: p. 131; Nakamura, 2010; Toombs, 2016). "[K]nowledge for knowledge's sake [is] a waste of time…Things, ideas, people and places [are] meaningful because of their utility," and if they have no utility, then they "[are] not considered important and [are] ignored" (Meyer, 1998: pp. 47-48, describing the Indigenous Hawaiian perspective). Indigenous peoples are highly pragmatic peoples, "utility is fundamental to knowledge" and "knowledge must be useful or have a function for it to be meaningful or important," and to the extent a thing had no utility to humans then it is not even named (Meyer, 2001: pp. 195-196).

To be clear, under the more extreme position, it is not a matter of respecting the original name and knowledge of a thing by Indigenous peoples, it is a waste of time, somehow disrespectful of the Indigenous worldview, and perhaps even unethical to name or research the thing at all. We have two concerns with this position. First, Western science is rightfully denounced by many as treating the Earth and other peoples as mere resources to be used. Nakagawa (2017) and others correctly deplore that Western research takes only what it values from Indigenous peoples and discards what it does not. However, the sentiment expressed in the preceding paragraph—in which only knowledge with immediate utility to humans is valued—seems to reflect this Western utilitarian approach. Second, of all the issues we discuss in this paper, this dismissal of knowledge with no apparent immediate utility is the most difficult for us, as Westerners, to understand. Curiosity has certainly resulted in many tragedies but it has also led to our species' greatest triumphs.

It is certainly reasonable that Indigenous research should include and even emphasize addressing the pressing issues and concerns of Indigenous peoples. Research informs policy-makers and there is value in identifying problems for policy-makers to address and, ideally, potential solutions for them to consider. However, to the extent that the interests of many researchers and funding entities involve subject matter with no apparent immediate utility, extreme limits on eligible subject matter would be a challenge to the broader recognition and acceptance of IMs.

7.2. Ideological Challenges

7.2.1. Overt Politicization of Research

Many advocates acknowledge (and embrace) that Indigenous research agendas

are overtly political, highly emotive, focused on changing and improving conditions, and primarily concerned with the survival of Indigenous peoples, languages, lands, and cultures (Rigney, 1999; Smith, 2012; Toombs, 2016). "Indigenous research is about being personal and political and responsible for creating change" (Absolon, 2011: p. 55). To that end, some have argued that Indigenous communities should take more control over all phases of research, including conceptualization, goals, organization, implementation, methods, and management (Champagne, 2015).

Taking this further, Champagne (2015) and others have suggested that review by and approval of Indigenous governments, as the guardians of collective assets, heritage, and well-being, should be required before Indigenous individuals can be research participants and before Indigenous sites can be excavated, even when the individuals or sites are outside of legally recognized Indigenous territories. "In a conflict between a tribal government and a tribal citizen, the powers of the tribal government should prevail. Researchers do not have the power or right to challenge tribal government authority over tribal citizens" (Champagne, 2015: p. 67). For example, if a tribal citizen wants to provide knowledge to a researcher but doing so is rejected by the tribal review board, then the researcher should honor the authority of the review board (Champagne, 2015).

Assuming that Champagne's (2015) claim is correct, tribal governments' desire to exercise absolute control over all research involving their members, communities, and cultures, both inside and outside their territories, is likely unachievable. One obstacle is defining what "research" would be subject to such control. For example, under federal law concerning human subjects, "research" is defined broadly as "a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge" (45 C.F.R. §46.102(l)). However, the following activities are expressly deemed *not* to be research: 1) Scholarly and journalistic activities; 2) public health surveillance activities; 3) law enforcement activities; and 4) authorized activities in support of intelligence, homeland security, defense, or other national security missions (45 C.F.R. §46.102(l)). Another obstacle is establishing the legal authority to require the review and approval of research. Again using federal law as an example, no researcher is required to obtain approval from an Institutional Review Board or otherwise submit to oversight unless their research is "conducted, supported, or otherwise subject to regulation by any federal department or agency that takes appropriate administrative action to make the policy applicable to such research" (45 C.F.R. §46.101), or specifically required by other laws.

Among the most extreme advocates, Nakagawa (2017: pp. 106-107) called on researchers not just to assist but to "sacrifice" themselves to help the researched community achieve what the community wants and needs, and to understand and practice dominant ideology not just so they can work within the dominant system to make change but so they can "abuse the dominant system in such a way as to serve non-dominant peoples/groups/communities." We assume Na-

kagawa (2017) was merely zealously advocating for their position and not suggesting unethical or illegal action, but hyperbolic language such as this, with no explanation whatsoever of what it means in practice to "sacrifice" oneself and "abuse" the system as a researcher, is deeply concerning.

Pursuing decolonization in research, including employing IMs, can certainly be characterized as a political act. Some level of activism is acceptable, even expected, in certain types of research. For example, under the transformative research paradigm, the express purpose of research is to create social and political change. However, extreme politicization and activism may raise questions about the legitimacy of data and results, which could very easily completely and permanently undermine the recognition and acceptance of IMs.

7.2.2. Difficulty Achieving Participant Buy-In

Historically, colonial education was perceived as creating "Indigenous elites" (Smith, 2012: p. 68). Schools identified talented students and groomed them for more advanced education, and, along the way, those students acquired the tastes and enjoyed the benefits and privileges of living within the dominant society (Smith, 2012). "Their elite status came about through the alignment of their cultural and economic interests with those of the colonizing group rather than with those of their own society" (Smith, 2012: p. 68). On the one hand, Indigenous intellectuals trained in Western schools have the knowledge and skills to reclaim, rehabilitate, and articulate Indigenous cultures and to lead movements (Smith, 2012). On the other hand, they are the group most closely aligned with the colonizers in terms of their class interests, values, and ways of thinking (Smith, 2012). "There is very real ambivalence in [I]ndigenous communities towards the role of Western education and those who have been educated in universities" (Smith, 2012: p. 75). As a result, researchers who are Indigenous may be dismissed by Western colleagues when they take Indigenist positions, including using IMs, and also criticized by Indigenous communities for their Western education which is seen as precluding them from speaking or writing from real or authentic Indigenous positions (Smith, 2012).

Thus, ironically, a challenge for all researchers using Indigenous methodologies—including researchers who are themselves Indigenous persons and even community members—is achieving buy-in by the Indigenous communities. At the same time, a significant opportunity for IMs is that, of all the research paradigms, it is best positioned to achieve that buy-in.

7.3. Process Challenges regarding How Research Is Performed

7.3.1. Lack of Well-Defined and Evaluatable Procedures

The credibility of research is assessed based, in part, on the extent to which established methodological procedures were followed. Evaluating Indigenous processes and methodologies using Western criteria is problematic, and "[non-Indigenous scholars] may not have the background to appreciate validity from an Indigenous perspective, where truth is found in the subjective, and validity is in

the nature of the relationship with culture" (Kovach, 2009: p. 149). "Clearly, more scholarship based on Indigenous research frameworks is needed [to] ensure that Indigenous research practice, method, findings, and meanings will be judged as credible according to tribal epistemologies" (Kovach, 2009: p. 133). However, because there are so many different Indigenous groups, it may be that Indigenous scholars never achieve consensus on the nature, procedures, and general details of IMs (Nakagawa, 2017). There are common elements, but "it is not the method, *per se*, that is the determining characteristic of IMs, but rather the interplay (the relationship) between the method and paradigm and the extent to which the method, itself, is congruent with an Indigenous worldview" (Edwards et al., 2020: p. 9). Ultimately, there may be only general guidelines and a set of negotiated practices that differ between communities and peoples (Woods, 2009, reviewing Denzin et al., 2008).

At this point, "[d]oing IMs in the academy means sometimes taking the road less traveled and bush-whacking it from time to time," including with regard to establishing procedures for performing research (Absolon, 2011: p. 141). As with other challenges for IMs, concerns about research procedures are obstacles to increased recognition and acceptance and, therefore, increased use, and yet can likely only be overcome through ongoing development that comes from increased use.

7.3.2. Non-Universalizability and Subjectivity

Relatedly, many researchers have characterized their research methodologies as "Indigenous" but it remains unclear exactly what constitutes an Indigenous methodology (Drawson et al., 2017). Epistemological commonalities unite Indigenous approaches, but specific tribal knowledges direct methods (Kovach, 2009). "Because so much of Indigenous ways of knowing is internal, personal, and experiential, creating a standardized, externalized framework for Indigenous research is nearly impossible" (Kovach, 2009: p. 43). "Prescriptions or formulas for IMs do not exist" (Absolon, 2011: p. 48). IMs are not amenable to step-by-step procedural definition, but rather they reflect the diversity and complexity of Indigenous communities and peoples (Windchief & Cummins, 2022). "Indigenous research methodologies cultivate organic processes, which are unplanned and unpredictable…When we listen to inner knowing, our dreams, the signs around us, and our intuition, we become attuned to possibilities that enable an organic process to emerge" (Absolon, 2011: p. 85). Further, Indigenous ways of knowing are "holistic," they have mental, emotional, spiritual, and physical aspects, and they cannot be subjected to or understood through Western reductionistic analysis because they cannot be fragmented, externalized, or objectified (Kovach, 2009).

In response to criticism that IMs emphasize form over findings, Windchief et al. (2018: p. 534) asserted that "the form is integral to the findings." The process by which one looks for answers frames the answers they find, so "an emphasis on form *is* an emphasis on findings" (Windchief et al., 2018: p. 534, emphasis added). "The form…builds trust and creates space for understanding and relat-

ing in that space[, and this] must happen if we wish to find the answers that we need to make research meaningful" (Windchief et al., 2018: p. 534). Further, "for many Indians, writing about Indians is a personal, emotional, and political exercise" (Mihesuah, 1998: p. 13), and "the researcher *is* the research procedure or process" (Nakagawa, 2017: p. 109, emphasis added). "Indigenous inquiry involves specific multi-layered preparations particular to each researcher…There is no formula (nor could there be) for this preparation… [and] they are not preparations amenable to academic evaluation" (Kovach, 2009: p. 109). Thus, ideally, "[w]ithin an Indigenous research framework, researchers would present their interpretation of the tribal epistemology guiding their research, and they would each do so in [their] own way" (Kovach, 2009: p. 64). "[S]ubjectivity is a given, and [t]o embrace IMs is to accept subjective knowledge" (Kovach, 2009: p. 111).

Indigenous knowledge comes from many sources, including traditional teachings, empirical observations, and revelations such as may result from dreams, visions, cellular memory, and intuition (Castellano, 2000; Kovach, 2009; Steinhauer, 2002). From an Indigenous perspective, the search for knowledge is a spiritual journey involving prayer, ceremony, vision quests, and dreams (Castellano, 2000; Kovach, 2009; Louis, 2007). Such "metaphysical phenomena are highly regarded [in Indigenous knowledge systems]" (Louis, 2007: p. 134), and "traditional Native beliefs do not separate religion and science" (Faye, 2001: p. 273; see also Shipley & Williams, 2019). "At the heart of Indigenous epistemology is spirituality, and as Indigenous peoples we are responsible to validate spiritually derived knowledge and the various form of evoking this knowledge and not replicate Western research paradigms" (Absolon, 2011: p. 60).

However, spiritual knowledge is emphatically unacceptable in Western scientific research (Kovach, 2009: p. 67). For example, the above-mentioned cultural anthropologist insisted on dismissing and denigrating Indigenous ways of knowing as nothing more than religious "faith" and, therefore, not knowledge at all. Integrating spiritual knowledge and processes, such as ceremonies and dreams, into research makes mainstream academia extremely uncomfortable due to Western science's uneasy relationship with the metaphysical (Kovach, 2009). Setting aside concerns about objectivity, which even Western researchers understand is impossible to achieve, a lack of universalizability—i.e., a unique process for each group or even each project—as well as a high level of subjectivity for each researcher makes evaluation and replication difficult and therefore poses a considerable challenge to broader recognition and acceptance of IMs. Some standardization of the research design process for IMs is likely necessary, but standardization can and must accommodate metaphysically-inclusive data and explanations.

7.3.3. Control over the Research Process

Many advocates have argued for increased Indigenous participation in the research process, including negotiating aspects of that process. For example, in Australia there is "evidence of growing awareness from within academia of the

importance of negotiating proposed research with representatives of Indigenous interests at an early stage of the process" (Dunbar & Scrimgeour, 2006: p. 180). However, engaging in such negotiation is not without obstacles, such as identifying key stakeholders, including relevant community representatives.

Some have asserted that IMs may require community consent in addition to individual consent (Juutilainen et al., 2019; Dickert & Sugarman, 2005). For example, Tsosie et al. (2021: p. 73), advocating for improvements to the positivist/postpositivist genetics research process, argued that the notion that the individual has the right to consent to providing bodily (e.g., genetic) samples "is rooted in Western bioethics but is culturally incongruent with Indigenous group or communitarian ethics." Dodson and Williamson (1999: p. 205), also advocating for improvements to the genetics research process, claimed that many Indigenous peoples view land and other property, including genetic property, as belonging to the group "and either cannot be bought and sold at all or can only be sold if the entire group agrees to this after discussion." In fact, the National Congress of American Indians (2019) Resolution #ABQ-19-061 has called on the National Institutes of Health (which promulgates federal rules regarding researching human subjects) to "immediately develop clear processes and guidelines that ask individual sovereign tribal nations to provide prior consent before collecting data and specimens from their tribal members," and "to provide tribal nations oversight of any data or biospecimens that are associated with or identified to be from a citizen of their tribal nation."

We are unaware of broad support for such claims to tribal governmental authority over individuals' bodies or knowledge of culture, and none of our research participants have ever expressed a desire or need to consult with or seek permission from their governments to participate. A single interviewee (No. 17, 2022) did state they believe the tribe owns data about the tribe and its culture, and that even if individuals own their own DNA, they still have responsibilities to their tribes and communities and should get consent to participate in genetics studies. However, the same interviewee also acknowledged that there is no way for tribes to enforce such a requirement, so tribes must make members aware of these values and expectations. It seems to us that if tribes must make members aware of an obligation to seek tribal consent before participating in research then that undermines the assertion that this level of community control is a long-standing and well-respected aspect of Indigenous culture. In fact, several other interviewees (No. 3, 2022; No. 20, 2022; No. 28, 2022) stated they do not think tribal permission is needed to participate in research, including genetics studies.

Until we can verify general knowledge of and respect by Indigenous individuals for this claim of tribal authority over their bodies or general knowledge of culture we are inclined to treat it with some skepticism. Genetic and other biological sampling and analysis is such a relatively recent research technique that it seems unlikely that there is a long-established and deeply held principle of living individuals' bodily components belonging to the group. We also note that Dod-

son and Williamson (1999) and others do not assert that an Indigenous person needs group permission to donate blood or organs or undergo surgery—all of which affect the supposedly communally owned body—only that they need permission to participate in research.

Other advocates have argued for an even higher level of Indigenous control over the research process. According to them, "[I]ndigenous persons must conduct, own, and benefit from any research that is done on, for, or with them" (Denzin & Lincoln, 2008b: p. 10). "Tribes must be in the driver's seat and maintain control of what questions are asked and who gets to ask the questions…as well as who can access this information to protect their Indigenous knowledge and to ensure that it is not misrepresented" (Walter & Suina, 2019: p. 238). For example, under the principles of Ownership, Control, Access, Possession (OCAP), "[c]ommunities, not researchers, decide the direction of the research study, who can access the data, and how it will be used" (Juutilainen et al., 2019: p. 143). Communities are viewed as research collaborators, not as research subjects or participants, and they determine the nature of the research questions, methods, benefits to the community, and how results are reported (Juutilainen et al., 2019). Similarly, the Indigenous Data Sovereignty (IDS) movement asserts tribal rights to data about Indigenous peoples, territories, ways of life, and natural resources (Walter & Suina, 2019). The IDS movement advocates for the right of Indigenous peoples to determine the means of collection, access, analysis, interpretation, management, dissemination, and reuse of data pertaining to the Indigenous peoples from whom it has been derived or to whom it relates (Kukutai & Taylor, 2016; Snipp, 2016).

Certainly, aspects of the research process can and should be negotiable (within limits—no researcher can ethically agree to manipulate results to support a desired outcome). However, discussions of data sovereignty generally do not distinguish between negotiated and non-negotiated data but seem, instead, to claim rights over all data. At the extreme, the issue seems to be about control, not collaboration, as there is nothing left for the researcher to decide or do but the actual work. Arguments for such complete control based on rights to self-determination and governance are, at best, unclear and poorly developed. Governmental control over information is not an ordinary exercise of sovereignty, and is (at least, from a Western perspective) antithetical to an open and free society. For a government to assert the right to control who gets to do research, what is researched, how it is researched, and what happens to the data and the results is likely unacceptable interference to the vast majority of researchers and funding agencies.

In fact, many tribes guarantee their members the freedom of speech, including, for example, in the Navajo Nation Bill of Rights, the Constitution of the Cherokee Nation, the Constitution of the Oglala Sioux Tribe, and the Constitution & Bylaws of the Menominee Indian Tribe of Wisconsin. The US government itself does not have the legal authority to control the production and dis-

semination of knowledge about itself, American culture, or its citizens except in very specific circumstances such as for national security. Tribes may be able to claim national security interests, but it is highly unlikely that tribes could use that as a basis for controlling all research and data concerning them. Extreme levels of control over the research and reporting process by Indigenous communities would likely create a significant obstacle to broader recognition and acceptance of both IMs and Indigenous research generally, to the detriment of all stakeholders.

7.3.4. Different Data Collection Methods

IMs involve different methods of data collection that many Western researchers would find unfamiliar and unorthodox. For example, Western data collection generally focuses on individuals, and so conventional interviews under the Western model typically involve an individual interviewer interrogating an individual interviewee (Chilisa, 2020). Further, Western research methods generally involve unequal relations between interviewee and interviewer, which shape the questions asked, the answers given, and the subsequent analysis of those answers (Chilisa, 2020). In contrast, an Indigenous interview method may give equal power to interviewer and interviewee and allow each to ask questions for an equal amount of time (Chilisa, 2020; Pe-Pua, 1989). Indigenous interviews may take place within a "talking circle" format that symbolizes the equality of participants and encourages the sharing of ideas (Chilisa, 2020). Obviously, conducting interviews in more culturally appropriate ways may provide data that would not otherwise be accessible or forthcoming.

Relatedly, Western research ethics emphasizes the confidentiality of interviewees and other participants. However, some Indigenous interviewees may wish to be identified and have their contributions acknowledged (Chilisa, 2020). IMs allow for revealing the identities of subjects so that knowledge can be traced to its originators (Chilisa, 2020) because collected data can lose its meaning if it is disconnected from its human context (Allen, 1998). In particular, the power of story-based knowledge is dependent on knowing the identity of the storyteller (Chilisa, 2020). While Western methods allow for semi- and un-structured interviews, and even data collection "conversations" in embedded observation methods, the use of more culturally specific methods, with the potential for correspondingly higher rewards, goes beyond what most Western researchers would normally attempt.

On the one hand, it may be a challenge to the recognition and acceptance of IMs to show that these data collection methods are valid and reliable due to the lack of structure and control. On the other hand, there is an opportunity in that they allow for accessing kinds and depths of data that may not have been accessible before. Further, identifying interviewees and other sources of data—assuming they voluntarily agree to being identified—may provide a mechanism for satisfying concerns about the validity and reliability of data.

7.3.5. Relational Complexity

IMs are relational and emphasize respect for those or that which will be exposed to the consequences of research (Kovach, 2009). Relational epistemology focuses on individuals and communities as knowers, in contrast to the disconnected knowledge that dominates in Western paradigms (Chilisa, 2020; Thayer-Bacon, 2010). Relationality means the researcher is not a discrete individual but a being in relationship to others and is not studying discrete objects but relationships between objects (Wilson, 2001). Knowledge is socially constructed by beings who have relationships and connections with each other, the living and the non-living (e.g., spirits), including the environment, which inform what they can know and how they can know it (Chilisa, 2020).

One manifestation of relationality is respect, and IMs emphasize respect for Indigenous rights by seeking permission for research, protecting Indigenous interests, and contributing toward the fulfillment of Indigenous goals and values (Champagne, 2015). Good research requires maintaining good relationships with the communities with which researchers work (Kovach, 2009). Showing respect earns trust, and "[f]or story to surface, there must be trust…In asking others to share stories, it is necessary to share our own, starting with self-location" (Kovach, 2009: p. 98). There are a variety of ways to show respect and create trusting relationships, including following protocols, demonstrating responsibility for protecting sacred knowledge, defending the validity of cultural knowledge, and giving back to the community (Kovach, 2009).

Another manifestation of relationality is reciprocity. Under Western research paradigms, Indigenous research subjects "generally lack access to the knowledge produced because it is packaged in forms and language that they cannot comprehend or that is not useful for their community needs" (Chilisa, 2020: p. 91). A great deal of published results are also inaccessible because they are hidden behind journal paywalls. "'[IMs are] a lot more mindful, respectful of the bigger picture and the individuals within the bigger picture. It's not just the institution that matters or what publications can come out of it. It is about how [research] can benefit the community'" (Kovach, 2009: p. 139, quoting their interviewee). IMs give back to the community in ways that are useful to it, which requires knowing what the community would find useful—so having a relationship with the community is important to reciprocity (Kovach, 2009). Reciprocity requires inclusion and an equitable benefit to the community, and this benefit should be negotiated with the goal of improving or enhancing the interests of the people (Toombs, 2016). As one interviewee (No. 29, 2022) put it, "Knowledge is responsibility, and when Native Americans share knowledge with you, you have a responsibility to carry that and do something with it that helps push that tribe forward. Otherwise it was shared with you without any kind of reciprocity."

Another manifestation of relationality is accountability: "As a researcher you are answering to *all your relations* when you are doing research" (Wilson, 2001: p. 177, emphasis in original). So rather than focusing only on validity and reliability, the researcher must also consider whether and how they are fulfilling their

role in the relationship (Wilson, 2001). Research on Indigenous peoples should not merely inform the present but also be accountable to future generations (Nakagawa, 2017).

Although the relationality aspect of IMs creates a challenge by increasing the investment of time in and complexity of the research process and beyond, it does provide an opportunity for greater recognition and acceptance by making IMs something *more* than Western research paradigms, which increases rigor and, potentially, the quality of results.

7.3.6. Requirement to Learn Language and Use of Oral Testimony as Data

Many advocates of IMs have argued that researching and writing in Indigenous languages is an important decolonizing strategy (Chilisa, 2020). Researchers should be proficient, if not fluent, in the language of the community in order to understand the community's worldview (Battiste & Henderson, 2000, arguing that worldviews cannot be translated; Kovach, 2009: p. 59, asserting "Language matters because it holds within it a people's worldview;" Nakagawa, 2017; Ormiston, 2010: p. 55; Waters, 2004). Worldview and language are inextricably linked, and there are worldview concepts in Indigenous languages that do not translate into English, and attempts to translate these concepts either lose or change meaning (Kovach, 2009).

Western research frameworks emphasize written language. As an interviewee (No. 27, 2022) stated, in Western science there is no place for narrative or story, just testing and measurement, and Western scientists reject Indigenous stories as being untestable. However, Indigenous knowledge is produced, stored, and disseminated within oral traditions, and meant to be understood in the spoken language of the particular community (Kovach, 2009). As another interviewee (No. 14, 2022) put it, "I'm a storyteller *and* a scientist." The relationship between writer and reader is different from the relationship between teller and listener, and the relationship between original teller and ultimate reader is, at best, merely conceptual, but it is unlikely that the full nuance of stories from oral traditions can be fully appreciated or reproduced in writing by Western researchers (Kovach, 2009).

Oral traditions can take different forms. For example, Coombes and Ryder (2020), Australian Indigenous researchers, employed an Indigenous methodology involving the techniques of "yarning and Dadirri" during interviews. "Yarning is a relaxed and informal conversation that is a part of [Australian Indigenous] culture, a way of introduction where we talk about our common family connections and where respect begins to grow, commonly referred to as family yarning" (Coombes & Ryder, 2020: p. 61). Dadirri is "a way of deep listening and learning" (Coombes & Ryder, 2020: p. 61). This Indigenous data collection method allows for "respecting culture, walking together, sharing stories and learning from one another and within this study, allowing Australia's First Nation families to tell their stories without the concern of misinterpretation" (Coombes &

Ryder, 2020: p. 61).

Translating and transcribing stories is always a concession by the Indigenous researcher because so much is lost in the translation and transcription processes (Kovach, 2009). Translation can be difficult, and even those who translate from one Western language to another can change meaning even though the languages are of cultures that share the same worldview. Clearly, it is much more difficult and even more meaning is changed when translating between languages of cultures that have different worldviews. Nevertheless, the point of research is to make generally known what is generally unknown, which requires translation in one form or another to make knowledge more accessible. Learning languages is important to showing respect and practicing reciprocity and responsibility, but requiring researchers who do not normally invest their time in learning languages to do so creates a challenge for those researchers using IMs. Further, while some researchers spend their careers studying one group or related groups that speak the same language, others may shift their focus to different groups with different languages which may make the requirement to learn a new language for each new group impractical.

Additionally, as one interviewee (No. 18, 2022) noted, if language is essential to worldview, then what does that say about the many Indigenous groups who have lost their languages—have they also necessarily lost their worldviews? Another interviewee (No. 23, 2022) similarly noted that requiring an Indigenous researcher to know the group's language ignores the fact that even many Indigenous individuals with otherwise strong cultural knowledge and connections are not fully knowledgeable of their own group's language or ceremonies. Of course, there is an opportunity to promote broader recognition and acceptance in that researchers who can directly speak to and understand individuals, their communities, and their governments will have an advantage with regard to obtaining more and better data.

The importance of language is further emphasized by the fact that Indigenous knowledge is transmitted orally and the fact that the active involvement of the listener results in a personal insight component of knowledge exchange (Kovach, 2009). In oral traditions, stories cannot be decontextualized from the storyteller (Kovach, 2009). "Stories are central to [their] lives…They have been used to collect, deposit, analyze, store, and disseminate information and as instruments of socialization" (Chilisa, 2020: p. 193). "There is an inseparable relationship between story and knowing and an interrelationship between narrative and research in IMs… Narrative functions as an intergenerational knowledge transfer" (Kovach, 2009: pp. 94-95). Thus, stories and the Indigenous languages with which they are communicated are the foundational literature for understanding Indigenous cultures (Chilisa, 2020). Nevertheless, Western gatekeepers, including, in our own experience, some cultural anthropologists who see themselves as scientists, have tended to dismiss oral traditions based on the assumption that they are merely folktales and/or an unreliable artifact of pre-literate cultures (Kovach,

2009).

The long-standing controversy over the validity and reliability of oral testimony as data may never be resolved and so its use will likely always present some degree of challenge for the broader recognition and acceptance of IMs. It may be helpful to supplement and support oral testimony with less controversial forms of data, especially when the research involves the legal or political interests of the Indigenous participants and other stakeholders.

7.4. Results Challenges regarding How Results are Generated and Reported or Not Reported

7.4.1. Lack of Criteria for Evaluating Results

Those who have employed IMs are familiar with non-Indigenous peers and supervisors questioning validity and reliability (Absolon, 2011). In particular, spiritual ways of knowing, which are not recognized in Western research, are dismissed as lacking rigor and derided as unevaluatable (Absolon, 2011). One solution may be to reframe validity and reliability using more relevant characterizations. For example, internal validity may be characterized as "credibility," external validity as "transferability," reliability as "dependability," and objectivity as "confirmability" (Chilisa, 2020: p. 213). Another solution to satisfying Western stakeholders may be to perform at least certain aspects of the research also using a Western paradigm, thereby providing a check on results achieved using the Indigenous methodology. Of course, this could be seen as privileging Western paradigms as the benchmark for legitimate knowledge. After all, researchers who use Western paradigms to study Indigenous peoples do not perform aspects of their research also using IMs to provide a check on their results. However, if it can be demonstrated that IM's produce equally or even more valid and reliable results than Western paradigms for certain research, then Western gatekeepers would be forced to recognize and accept them.

Advocates are also familiar with Western gatekeepers' lack of knowledge about Indigenous peoples' histories, experiences, worldviews, theories, and methods (Absolon, 2011). "Indigenous re-searchers [*sic*] are subjected to academics who are not competent on Indigenous matters, yet judge and measure us using Western standards" (Absolon, 2011: p. 147). For example, it is often necessary for graduate students to educate non-Indigenous committee members about Indigenous perspectives, but even when they are open to being educated it can be time-consuming and draining to have to do so (Absolon, 2011). One solution may be to allow tribal elders and ceremonial leaders, with their first-hand knowledge of the subjects and the issues, to be committee members and other reviewers (Absolon, 2011). As an interviewee (No. 15, 2022) stated, "The people who are truly embodying IMs are not in Western science, they're not in Western academic institutions, they are our ceremonial ground leaders." Given both the dearth of Indigenous faculty mentors and the highly community-specific nature of IMs, elders and other Indigenous leaders would be better able to both explain and advocate for IMs and better judge re-

searchers' results. Having said that, one interviewee (No. 15, 2022) recounted extreme difficulty in trying to add a tribal elder to their committee: "[O]h my god, the barriers!... It was just this big brick wall. [The department] said, 'We're not doing that, we're not going to set that precedent [of having uncredentialed experts on committees] at this university'."

At the extreme, some advocates have rejected evaluation, at least by Western scholars, of the results of research performed using IMs: "[M]easuring Aboriginal knowledges against [W]estern criteria is academic racism and colonialism: 'Aboriginal knowledge was invalidated by Western ways of knowing…[which] served to perpetrate a superior/inferior relationship around knowledge and how this knowledge is passed on'" (Absolon, 2011: p. 27, quoting Stiffarm, 1998: p. xi). While understandable, this level of resistance will not lead to—and seems to consciously reject—broader recognition and acceptance of IMs.

Given that concern for processes and effects are hallmarks of IMs, adding rather than substituting them as considerations in the ultimate evaluation of research would increase rigor. Further, given that every Indigenous methodology is at least in some ways unique to a particular Indigenous community and potentially even to each particular researcher, the need for explanation and criteria for evaluation of results, especially at this stage in the development of IMs, is particularly important for garnering greater recognition and acceptance and cannot be reasonably avoided or dismissed.

7.4.2. Control over Interpreting Data and Characterizing and Reporting Results

An aspect of accountability is involving Indigenous research participants in interpreting data and characterizing results. "Many Indigenous scholars note that imbalanced power relationships between researchers and Indigenous persons results in erroneous interpretations of Indigenous experiences" (Juutilainen et al., 2019: p. 142). For example, Weber-Pilwax (2001) described finding an article by an anthropologist about her grandfather that included a verbatim transcription of his statements in the Cree language and an inaccurate English translation and interpretation, which left her feeling angry and violated. With regard to involving Indigenous research participants in interpreting data and characterizing results, an interviewee (No. 28, 2022) reasonably observed:

> Some people will say 'that's an academic freedom thing, you can't tell me how I'm disseminating the data, and tribes shouldn't get a veto power over that.' Well, how does it work when two scientists publish a paper together? They are both in agreement. And they come to an agreement with that publication…I don't see any difference with our tribal collaborations *as equals*.

On the one hand, allowing any research participants too much control over the interpretation of data or characterization of results can potentially skew research into the realm of fiction, romanticism, and even propaganda, which creates a challenge to broader recognition and acceptance. Some have already

expressed the concern that "over the past several decades, Indians have become the central actors in editing and revising, in garnishing, enlarging, and serializing the narrative's substance, busily occupied with inventing their own preferred image" (Clifton, 1990: p. 19). On the other hand, inaccurate translations and other bad data lead to inaccurate results that are just another form of fiction. The obvious solution is to ask the participant or someone similarly situated to review data for correctness, much like a journalist might do when attributing a position or quote to a source, which ensures greater accuracy and thereby creates an opportunity for broader recognition and acceptance. Further, as an interviewee (No. 34, 2023) noted, Indigenous groups should be given access to data so that they can make their own interpretations and, when desired, make data-based arguments against those seeking to impose other interpretations or arguing for policies with which the Indigenous groups disagree.

The publication of research findings is important to establishing the legitimacy of IMs and is particularly important for providing accurate reference material for future research (Kovach, 2009). However, traditional academic publication can be frustrating for researchers using IMs (or otherwise incorporating an Indigenous worldview). Papers submitted to journals for publication may be rejected simply because of a lack of sufficiently qualified peer reviewers (Davidson et al., 2018). Further, there is pressure on Indigenous researchers to present their findings in accepted ways and to "not radically contest established standards lest they risk entering into the publication void" (Kovach, 2009: p. 84). Also complicating the reporting of results, among Indigenous researchers and research participants there is concern about the risk of cultural knowledge being appropriated or diminished (Kovach, 2009). Some knowledge is regarded as sacred or restricted and should not be exposed to disrespect, appropriation, or exploitation (Kovach, 2009). Once it is collected and released into the public domain, it becomes difficult or impossible to control how it is represented and used (Kovach, 2009), so what to include in and what to exclude from papers and other reports become important decisions (Absolon, 2011).

More extreme advocates have asserted that Indigenous peoples must *own* the results of research and must control whether and when the results can be disseminated (Nakagawa, 2017). Some refer to the above-mentioned concept of "data sovereignty" as the "rights and interests of Indigenous peoples relating to the collection, ownership, and application of data about their people, lifeways, and territories" (Kukutai & Taylor, 2016: p. 2). Relatedly, some advocates have asserted that Indigenous peoples' have intellectual property rights in and thereby own the knowledge they share with researchers, and therefore already have the right to maintain control over all publication and reporting of that knowledge (Louis, 2007). Most such claims to intellectual property rights are largely incorrect, and existing intellectual property laws are largely unsuitable for use by Indigenous peoples seeking to protect cultural knowledge. For example, Nakagawa (2017) and others have characterized data ownership in terms of retaining copyright, but that reflects a common misunderstanding of the nature of copyright.

Copyright applies to "original works of authorship fixed in any tangible medium of expression" (17 C.F.R. §102(a)). The copyright in a work is owned by the author (in this case, the researcher) not the source (though it can be assigned by the author) (17 C.F.R. §201(a)). Importantly, while copyright can protect a particular presentation of data, it cannot protect the underlying data itself (17 C.F.R. §102(b)). Perhaps the only useful form of intellectual property protection for protecting cultural knowledge is trade secret, which would be lost if the information is ever disclosed and so has little applicability in a research context. At best, Indigenous communities could use contract law to control data and the dissemination of results, but researchers would have to agree to be bound by such contracts and that is unlikely if there are no assurances they will be able to use or even access the data they generate.

The issue of who controls and owns data is particularly important in genetics research. While many have advocated for improvements to the positivist/post-positivist genetics research process, they have also acknowledged the significant challenge this creates. For example, Wade (2018: para. 10) acknowledged, "Any community demanding that researchers slow down, change their questions, destroy samples, keep data private, and perhaps not even publish their results is bound to face skepticism from Western scientists," especially given the frequent requirement by funding agencies and journals to make data public so that others can check the work and build on it. As one interviewee (No. 3, 2022) stated, "The only reason genomics works is because people share data." Nevertheless, "[t]he interests of 'the public' and those of Indigenous Peoples should not be presumed to be synonymous" (Hudson et al., 2020: p. 378). If the goal of science is to maximize benefit for the greatest number of individuals, then Indigenous peoples will continue to be disenfranchised and bear disproportional burdens and risks for the "greater good" (Tsosie et al., 2021). Thus, Indigenous communities are understandably concerned about how their data is used, and open data removes the need for ongoing consultation with them (Hudson et al., 2020).

Given that the nature and process of research, including what questions are asked and what data is collected, is heavily negotiated under IMs, it is unclear why Indigenous communities would also require control over and exclusionary ownership rights to the results. This requirement alone could pose a significant challenge to broader recognition and acceptance of IMs because the risk is too great that researchers may be left with nothing. Increased and strengthened collaboration is reasonable, but simply transferring complete control from one party to the other likely is not.

7.4.3. Requirement to Benefit, Including Financial Compensation

IMs emphasize a requirement to benefit participant communities. They reject the Western "do no harm" model and adopt an "actively benefit" model "that makes the researcher responsible, not to a removed discipline (or institution) but rather to those studied" (Denzin & Lincoln, 2008b: p. 15; see also Champagne, 2015). Benefit can take the form of simply sharing and interpreting col-

lected data with and for the participants and their community (Champagne, 2015). This seems like a reasonable act of courtesy and good will, and we cannot imagine researchers being generally unwilling to do this. Of course, it is possible that certain kinds of research results (e.g., demographic or genetics research that uncovers infidelities) would cause harm if shared, but this possibility can be made clear and consented to by the community before the research begins.

However, the requirement to benefit can take a more extreme form in what we have referred to as "scientific consequentialism" (Williams & Shipley, 2020), which can potentially involve avoiding or suppressing research that might undermine the political agenda of the community or even potentially involve manipulating research to support that agenda. For example, Malhi (2019: p. 60) stated, "Some of the communities that have approached me to pursue a DNA project are in treaty negotiations or are pursuing access and resources…The tribal governments wish to use DNA studies… to support their legal cases." However, Bardill et al. (2018: p. 384) noted that the results of paleogenomic and other genetic research "can have negative consequences, undermining or complicating community claims in treaty, repatriation, territorial, or other legal cases." This raises the question of what happens if the genetics research is inconclusive or even negative—i.e., does not support or even contradicts Indigenous groups' arguments—can the results be published given that they will harm the groups' political interests? It might be difficult enough for researchers to make this decision, but if the Indigenous groups own the data, then it seems likely that the data would not be released and publications would not be approved.

Windchief (2018: p. 540) asserted that "[a]cademic freedom as enjoyed by scholars is something that needs to be considered differently within the Indigenous paradigm," which we interpret to mean that the deference and privilege researchers enjoy in Western contexts must give way to increased accountability in Indigenous contexts. This is reasonable within limits. The concept of academic freedom includes protecting researchers who study controversial issues and report controversial findings. For example, academic freedom protects students and faculty who teach, research, and write about flaws in Western research paradigms in the hope they will be addressed and corrected. We are concerned that combining the removal of such protection with a requirement to only research issues and produce findings that will benefit Indigenous peoples will result in IMs being seen as little more than an instrument of propaganda.

Another extreme form of the requirement to benefit is to financially compensate individuals or communities for their participation. For example, Deloria (1991: p. 466) asked, "If knowledge of the Indian community is so valuable, how can non-Indians receive so much compensation for their small knowledge and Indians receive so little for their extensive knowledge." The obvious answer is that the researchers take the risks and invest their time, money, and reputations to collect, analyze, and report the knowledge. Further, the notion that researchers "receive so much compensation" for their work reflects a lack of understanding of the financial lives of most researchers who are graduate students and

university faculty. Even with regard to attempts to commercialize research results, Dodson and Williamson (1999: p. 208), acknowledged that "the commercial significance of a gene discovery is easily overestimated, and the bulk of the inventive process takes place after the gene analysis," though they still argued that "from the ethical point of view it is unjust that one partner receives so little when its need is so much greater than that of the other partners." Relatedly, some have called for paying research participants, though this seems to arise less frequently than it used to (see, e.g., Mihesuah, 1998). The obvious problem with paying participants is that it incentives them to provide false information in order to be paid when they do not know or do not wish to disclose true information.

Whenever there is a purpose for research beyond achieving better understanding, that purpose risks biasing the process and the results. If research results in information that may harm a community's legal claims or other interests, then what becomes of that information—is it simply suppressed or might it be manipulated to support some desired outcome? We have yet to find a discussion of Indigenous research or IMs that addresses the limits of the requirement to benefit. Sharing data and interpreting data so that participants can understand is basic courtesy and should be a requirement, whenever possible, of all research. However, more extreme requirements to benefit can create a challenge to broader recognition and acceptance if they raise questions about the researchers' agenda and/or the participants' motives and can call into question the veracity of any results.

8. Conclusion

We believe it is important that Western institutions increase their recognition and acceptance of IMs as a distinct research paradigm outside of the Western tradition that provides an alternative approach to understanding the world (Kovach, 2009). Supporting Indigenous researchers includes: 1) decolonizing the self and the institution; 2) learning history, including the negative experiences many Indigenous people have had within the Western educational system; 3) moving beyond treating Indigenous peoples and cultures as the studied exotic "other;" 4) growing Indigenous scholarship; 5) evaluating Indigenous research on its own terms and not based on conformity with Western methodologies; and 6) engaging and forming relationships with Indigenous people and communities (Kovach, 2009). Individual faculty, departments, institutions, and disciplines can contribute to these efforts by critically examining their roles in either facilitating or hindering these goals (Botha, 2011). Extreme positions on both sides seem more focused on controlling rather than collaborating, fighting rather than finding common ground, and excluding rather than welcoming. To achieve the goal of broader recognition and acceptance of IMs, to the benefit of all, extreme positions must be avoided and compromises reached to both address the challenges and realize the opportunities associated with IMs. Ultimately, this requires that "Indigenous people must suspend distrust and non-Indigenous people

must suspend disbelief" (Kovach, 2009: p. 156).

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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