

Guiding principles for indigenous research practices

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Abstract

Based upon expansions of indigenous research methodologies in the literature, researchers are encouraged to understand indigenous research conceptualization and implementation within various communities. The purpose of this review is to outline six tenets or principles that are intended to engage researchers in practices that privilege the voices and goals of indigenous populations: indigenous identity development; indigenous paradigmatic lens; reflexivity and power sharing; critical immersion;

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participation and accountability; and methodological flexibility. Future research directions for expanding and operationalizing principles of indigenous research practices are also provided.

Keywords

Indigenous research, qualitative research, guidelines, best practices

Research in social, economic, and natural sciences has been conventionally defined as discovering a generalizable truth based on systematic data interpretation while attending to reliability and validity concerns (Smith, 2012). Such research, employing scientific and positivistic methods frequently developed in lab settings, aims for replication of results via experimentation and often undervalues participant contributions to studies. These methodological “rules” guide how researchers proceed, often with detachment that further objectifies populations that have limited power. Results oftentimes privilege voices of those following conventional research practices with academic training in Eurocentric perspectives, likely excluding indigenous ways of knowing and equitable participation in research processes in general (Kovach, 2009; Smith, 2012).

Thus, research may be synonymous with power and control: power over what ideas and findings matter and from whose perspective. Research is seldom the idea of those being researched, and rarely directly benefits them. As Cram, Ormond, and Carter (2006) noted, “researchers are knowledge brokers, people who have the power to construct legitimating arguments for or against ideas, theories or practices. They are collectors of information and producers of meaning which can be used for, or against indigenous interests” (p. 177). Unfortunately, research findings often influence policy and practice in various disciplines and can continue to subjugate groups tending to be disempowered within various institutions. wa Thiong’o (1986) identified outcomes of conventional research as a *cultural bomb* that weakens indigenous communities’ belief systems, senses of unity and languaging, and understandings of common struggle.

As initial responses to conventional research values and associated paradigms, such as positivism and postpositivism, qualitative methodologies with their rich academic history, offer additional research paradigms (e.g., social constructivism, queer theory, critical theory), alternative conceptualizations to collect data (e.g. interviews, photography, documents), including the degree to which researcher and participant voice are negotiated, and the privileging of context in data interpretation and presentation (Hays & Singh, 2012). Although developments in qualitative research address some concerns of conventional research methods, there are still limitations to employing qualitative methodology with indigenous populations globally. Even discourse on broad historical moments in qualitative research (see Denzin & Lincoln, 2011) address the transitions needed in methodology, speaking to the needs of indigenous populations.

The next step involves understanding a conceptualization of indigenous research, who it should involve, and how it should be practiced. A component of this step is determining to what degree conventional research approaches can be refined or adapted. Accordingly, we introduce six principles to engage researchers in practices that privilege the voices and goals of indigenous populations. These principles were developed from literature explored within a qualitative research course on indigenous and critical research methods. Relying primarily on the work of Hsia (2006), Lavallée (2009), and Smith (2012) among others, this literature review explores inherent power differentials within research and how researchers can employ decolonizing methods towards a more indigenous research practice.

Indigenous research defined

We expand upon the standard definition of indigenous as rooted within particular geography to explicitly address issues of power by further defining *indigenous populations* as individuals or groups belonging to developing or underdeveloped regions nationally or internationally, as well as those who have been marginalized by Eurocentric values and/or research methodologies (Chilisa, 2012; Hsia, 2006; Kovach, 2009; Smith, 2012). As Smith (2012) recounts, the term emerged in the 1970s out of struggles of the American Indian Movement and the Canadian Indian Brotherhood. Today, it helps to frame the experiences, issues and struggles of some of the world's colonized peoples. At an international level, indigenous populations often have histories of imperialism embedded within contemporary sociopolitical realities; at a national level, indigenous populations experience subjugation resulting from current and historical instances of oppression (Smith, 2012). While different in scope and specific experience, these groups balance sense of community and empowerment with distrust of dominant culture and prevailing histories as they make meaning of themselves and the world.

Conventional research in many fields, such as social sciences and business, entails researchers using the researched to further specific agendas outside the needs, benefits, or guidance of the researched and often employs oppressive, colonizing behaviors, such as using indigenous knowledge (or material) without permission or for financial gain (e.g. pharmaceutical companies using indigenous plant knowledge) of which the researched do not benefit (Kovach, 2009; Smith, 2012).

By contrast, *indigenous research* recognizes indigenous communities develop shared ways of knowing guided by how they view the world, themselves, and the connection between the two. Part of indigenous knowledge, then, is a combination of the reflection of and resistance to colonization in various realms. Those engaging in indigenous research reflect on who owns, designs, interprets, reports, and ultimately benefits from the research process and products (Smith, 2012). Research then becomes a process of rewriting history. As Smith (2012) notes,

History is also about power . . . it is the story of the powerful and how they became powerful, and then how they use their power to keep them in positions in which they can continue to dominate others. . . . in this sense history is not important for indigenous peoples because a thousand accounts of the “truth” will not alter the “fact” that indigenous peoples are still marginal and do not possess the power to transform history into justice. (p. 35)

Indigenous research also reflects that research is inevitably value-based, a convergence of researcher, participant, sociopolitical, and environmental values on research process and outcome (Kovach, 2009). It should thus be a process of coming together to contribute to the welfare of a community, a moral and political activity. Often cited as “the four R’s,” there are four axiological assumptions embedded within indigenous research: responsibility, respect, reciprocity, and, taken together as one assumption, rights and regulations. *Responsibility* refers to researchers’ accountability to participants, communities, and research topics and design; there is a responsibility for the impact of research on individuals and communities. Lavallée (2009) noted research accountability extends beyond formal research timeframes, and researchers are expected to be available to communities as needed in the future. *Respect* is engaging in methodological practices that report back findings and share knowledge; these practices can build stronger relationships between researchers and researched. Smith (2012) cited the Maori term of *whanaungatanga*, meaning relationships, whereby all involved in research practices become family. *Reciprocity* indicates a shared give and take of power when researching; researchers contribute to relationships and participants exercise self-determination during the research process. Finally, *rights and regulations* indicates the overarching rights of self-determination and participation of indigenous peoples, coupled with researchers obtaining free, prior, and informed consent of samples and communities.

The core of indigenous research, then, is attention to ethics and reflexivity regarding access to and privileging of knowledge, selection of methodological tools, and presentation of perspectives possessing physical, psychological, and sociopolitical consequences. A major goal is self-determination of indigenous peoples, within the research process and their everyday communities, with protection of indigenous knowledge as a key consideration in indigenous methodology (Porsanger, 2004). An indigenous research agenda involves movement towards this goal by attending to processes of healing, mobilization, transformation, and decolonization across several levels (Smith, 2012).

Discourse on indigenous research as conceptualized above has occurred within the past few decades in countries including New Zealand, Australia, Canada, and Botswana. Research in these regions led to the emergence of various centers and organizations (e.g., Indigenous Wellness Research Institute, Center for World Indigenous Studies, Indigenous Research Center of the Americas), journals and alternative publication outlets (e.g., *MAI Review*, *AlterNative*), ethical protocols (e.g., Guidelines for Ethical Research in Australian Indigenous Studies, Ethics

in First Nations Research), and paradigms and methodologies (e.g. critical race theory, appreciative inquiry, Kaupapa Maori, Medicine Wheel, Afrocentric). Additionally, there has been research application of more recent qualitative paradigms and traditions, like participatory action research and feminism, with indigenous populations. However, internationally there remain research and analysis gaps in understanding indigenous populations' sense of identity, community, or struggles, and detailed discussions of ways for researchers to employ indigenous methods. As Kovach (2009) noted, "We have an obligation to challenge the ideologies that shackle us" (p. 93).

Part of the conventional research struggle—whether quantitative or qualitative—is movement beyond "telling pain stories" (Tuck & Yang, 2014), which serves intentionally or unintentionally to further pathologize or disempower communities, towards humanizing common struggles while privileging communities' conceptualization, ownership, and knowledge. Thus, there is a need for more specific practices researchers can use to unpack what indigenous research is, can, and should be.

The purpose of this paper is to outline six principles intended to engage researchers in practices that privilege the voices and goals of indigenous populations: indigenous identity development; indigenous paradigmatic lens; reflexivity and power sharing; critical immersion; participation and accountability; and methodological flexibility. These principles are not intended to be prescriptive but to initiate conversation and action toward more relevant practice. We initiate our discussion with an outline of the process by which we developed these principles; we conclude with future directions in indigenous research.

Development of guiding principles

The instructor and six doctoral students in counseling, education, and nursing disciplines participated in a 15-week, 3-credit hour course exploring indigenous and critical research methods. This course built upon foundational knowledge from an introductory qualitative research course exploring key readings related to critical and indigenous research, methodologies, and paradigms, as well as engaging in activities to decolonize conventional research approaches with specific groups.

Specifically, the course included class discussions of readings on general indigenous research, ethics and indigenous research, and on specific methodologies, such as Kaupapa Maori, appreciative inquiry, praxis-oriented research, participatory rural appraisal, and Borderland-Mestizaje feminism; students also presented a specific indigenous research paradigm and re-conceptualized pilot study projects from a previous qualitative research course. The culminating project brought together class assignments and discussions in the development of a "top 10" list of tips for conducting indigenous research; these lists were assessed and collapsed to develop guiding principles outlined in this paper. Specifically as co-authors, we identified six intersecting themes from the tips that served as principles and developed thick description of each theme or principle. Although this course did not

include collaboration with indigenous people, future refinement and application of these principles should include such collaboration.

Guiding principles

Based on the doctoral research course described above, below we detail each principle and provide examples grounded in the literature reviewed and assessed within the course.

Indigenous identity development

Indigenous identity development involves active renegotiation of one's cultural identity to accommodate understanding how colonization has influenced personal identity of self and others. All individuals, no matter their personal history of colonization, can move towards understanding and appreciating the importance of indigenous identity; this is particularly important in forwarding research to expand or revise constructs from previous inquiry. Privileging indigenous identity can allow for attending to how colonization has influenced individual and community ways of knowing and what gets prioritized as knowledge (Kovach, 2009; Smith, 2012).

Applied to indigenous peoples specifically, developing indigenous identity concerns embracing a decolonized identity through five sequential (yet recycling) phases (Laenui, 2000): (1) rediscovery and discovery, or re-learning of one's history to understand culture, language and identity in new ways; (2) mourning or lamenting one's victimization by colonizers as one continues building new identity; (3) dreaming—which is rethinking institutions and structures developed and maintained by colonizers in ways that self-empowers; (4) commitment, or the active endorsement of identity meaningful to indigenous communities; and (5) action, which is reconstruction and implementation of decolonized identity once commitment is achieved. Non-indigenous researchers can progress through parallel phases where they embrace understanding the role colonization has in allowing their personal privilege and perpetuating oppression of others, process emotions about this emerging awareness of privilege and oppression, and engage in empowerment principles correcting inaccurate or misapplied knowledge systems and accommodate multiple ways of knowing.

For researchers belonging to indigenous groups, decolonization phases must occur within personal and professional realms: decolonization of self and the research community. For non-indigenous researchers, valuing indigenous identity equates to advocating for new, affirmative research paradigms and methodologies for indigenous groups. While non-indigenous researchers cannot identify as indigenous, they can move towards greater empathy for historical and current struggles associated with colonization and create change in the research process, which also allows space for indigenous researchers to employ and/or develop indigenous methodologies.

An indigenous identity is evident in various research endeavors. For example, Gudhlanga and Makaudze (2012), working with marginalized indigenous voices in Zimbabwe, discussed how usage of indigenous language in their research design promoted intellectual growth and meaningful development, transmission of values, and flexibility in conversing to avoid translation difficulties. When asserting indigenous knowledge systems are not to be viewed from confines of Eurocentric knowledge systems, Ray (2012), a member of the Anishnaabe indigenous group, included a personal story about indigenous methodologies; sharing of personal stories is part of this indigenous researcher's commitment to Anishnaabe storytelling traditions and emphasizes the process is as important as the product. Finally, in describing the history, myth, and identity of the new Indian story, Cook-Lynn (2008) conveyed and encouraged indigenous identity development:

Despite the crimes of history, we write. We continue as poets, novelists, fictionists, parents, grandparents. We continue to want stories. We have little power, but that does not mean that we have no influence . . . It is my business to remember the past and recall the old ways of the people. Literature and myth and history have always been the way to shape a new world. (p. 345)

Indigenous paradigmatic lens

Indigenous paradigmatic lens refers to using research approaches congruent with indigenous values and research goals, thus researchers must articulate a paradigmatic lens consonant with privileging the knowledge and voices of indigenous populations (Denzin & Lincoln, 2008; Smith 2012). This may involve revising existing research lenses. Although conventional research reflects imperialistic power structures organizing people into social hierarchies by the colonizer, decolonizing indigenous paradigms challenges researchers to be transparent about power structures, humanize gathering and reporting of data, and emphasize indigenous rights to reclaim dignity, power, language, customs, and ways of knowing central to their "otherness" (Smith, 2012).

Indigenous paradigm lenses allow for hidden, glazed over, or silenced stories of the oppressed to move forefront. For example, Lemelin et al. (2013) used appreciative inquiry to engage indigenous communities through visual analysis to create a more culturally relevant and respectful photo history of First Nations communities in Canada. Additionally, Hsia (2006) helped foreign brides stigmatized in mainstream Taiwanese society to develop confidence and personal identity leading to social transformation through praxis-oriented research. Hsia's (2006) research informed the larger community about global issues and empowered participants because the paradigmatic lens was sensitive to discrete issues (e.g. literacy barriers, cultural isolation) within this indigenous community of foreign brides.

Other examples of decolonizing paradigmatic lenses, connected to material reviewed in this paper's method, include the following: (a) Borderland-Mestizaje

feminism, centering on Chicano feminist perspectives and cultural practices (Saavedra & Nymark, 2008); (b) endarkened Black feminism, emphasizing Black feminist perspectives like regard for motherhood and egalitarianism (Dillard, 2008); (c) participatory rural appraisal, emphasizing knowledge and opinions of rural people in the management and design of research projects impacting their community (Chambers, 1994); (d) praxis-oriented research, involving developing critical consciousness for social transformation for researchers and participants (Hsia, 2006); (e) appreciative inquiry, challenging researchers to work with participants focusing on assets and values of groups within particular contexts to build on successes and enact change (Cooperrider, 1986; Cooperrider & Srivastva, 1987); (f) critical race theory, or examination of power struggles impacted by social hierarchies defined by race (Dunbar, 2008); and (g) the Afrocentric paradigm, specifically privileging African values with a strict interpretation of place (Stonebanks, 2008). These paradigms transform “blank spots” of gender, class, and race within dominant research methods to create new theories allowing transformation and healing (Saavedra & Nymark, 2008).

Reflexivity and power sharing

Reflexivity and power sharing is an interdependent process requiring focused attention to intrapersonal and interpersonal relationship dynamics before, during, and after the research process; it challenges conventional research notions of ownership of research and researcher personal disclosure and detachment (Hsia, 2006; Lavallée, 2009; Smith, 2012; Tuck & Yang, 2014). It involves an openness to explore power dynamics and researcher values and recognition that researcher responsibilities to participants and their community do not end with conclusion of the project or publication of the study (Chambers, 1994; Hsia, 2006). Rather, researchers have an obligation to prolonged engagement, possibly lifetime engagement, and must be prepared to give more than they take from the research relationship (Hsia, 2006; Smith, 2012).

Indigenous research places strong emphasis on researcher reflexivity, requiring researchers to employ personal transparency and vulnerability and to be open to scrutiny throughout the entire research process (Dillard, 2008; Lavallée, 2009). This involves honesty, openness about values and biases, willingness for personal growth and lifelong learning, and commitment to giving back to participants (Lavallée, 2009; Smith, 2012). Reflexivity in indigenous research also requires researchers to explore how to include themselves in the research process, as appropriate, possibly involving switching roles to become a participant, sharing personal reflections in the form of journals, artwork, or other creative means, and conveying honesty in distributed products about research motivations and biases (Dillard, 2008; Lavallée, 2009).

The power sharing dimension of this principle requires researchers to explore a spectrum of researcher–participant ownership, power, and cooperation issues within the research process, including demystifying the research process and making it accessible to participants. It involves recognition that researchers are

not experts, and that researchers must humbly approach, seek permission, and collaborate with elders and community members from the outset of the research process (Lavallée, 2009). Additionally, researchers must recognize that indigenous participants and communities own and serve as stewards for all data and the researchers are only borrowing these data for specific uses under guidance from shared decisions with participants (Smith, 2012). Relationships are essential, beginning with development of researcher trust, respect, and deference to participants and communities, including respectfully granting participants the right of refusal and recognizing some research can only be done by researchers who identify as indigenous (Smith, 2012; Tuck & Yang, 2014).

This principle could lead to community derived research methods, research objectives benefitting participants (i.e. co-researchers) more so than researchers, or higher levels of researcher involvement than is typical. For example, Lavallée (2009) described an indigenous research project in which she was also a member of the community being researched. She identified a process of sharing and openness throughout her project, including reciprocity with participants in forms of giving and receiving gifts, fluid researcher/participant role-switching, and responsiveness to participant ownership of data collection methods and communal displays of research results she had not planned for at project onset. In her project discussion, she maintained transparent disclosure of all aspects of the project and her involvement.

Critical immersion

Critical immersion, within the research process, employs holistic cultural awareness of self and others, full absorption into the research context, and the lens of critical consciousness (Walker, Fredericks, Mills, & Anderson, 2013). To achieve these larger goals, critical immersion involves several interdependent elements to accommodate for privileging indigenous knowledge: empathy, active reflection, and the re-experiencing of a culture. Critical immersion expands the trustworthiness strategy of prolonged engagement in qualitative research, a precursor to relationship building and authenticity and comprehensiveness of data (Hays & Singh, 2012), to include potentially greater openness to understanding how power influences relationships and data, as well as knowledge construction and reconstruction.

With respect to the first element of this principle, researchers engaged in critical immersion must be empathic and view experiences and ways of knowing from another's point of view. This entails listening to dialogue of daily living as well as observation of cultural practices in response to community norms or as resistance to ongoing oppression; engagement activities should not involve researchers inserting a point of view but should include conveying understanding of another's point of view (Smith, 2012; Walker et al., 2013; Waiters & Simoni, 2009).

To achieve empathy, researchers are to engage in active reflection—the second element of critical immersion. Active reflection involves gaining awareness of how individuals involved in the research process are influenced by their culture, other cultures, and power dynamics that shape the relationship of the two. In other

words, critical immersion involves being able to see the world through the eyes of indigenous people, to have knowledge of oneself as a cultural being, and to be aware how one's own cultural experiences affect views of cultural differences.

Active reflection extends beyond cross-cultural understanding to refer to ongoing consideration of how researcher presence in a setting may shift power in negative manners for participants and communities (Walters & Simoni, 2009).

Critical immersion also involves re-experiencing cultures, as to "erase" a dominant lens of knowing a particular construct and learning an alternative conceptualization presented by an indigenous community. In essence, this involves validating indigenous knowledge via indigenous terms (Kovach, 2009) and treating as sacred indigenous rituals, customs, and hierarchies (Hsia, 2006; Lavallée, 2009). Thus, cultural knowledge of indigenous peoples that was previously unknown and invalidated by academics is valued and respected (Dillard, 2008; Dunbar, 2008; Hsia, 2006; Kovach, 2009; Lavallée, 2009). With this re-experiencing and re-learning of knowledge, the researcher has an ethical responsibility to privilege and integrate indigenous ways of knowing into common discourse and understanding in academics.

The principle of critical immersion can be seen through a project developed by non-indigenous researchers Rossi, Rynne, and Nelson (2013) as they attempted to implement a grant-funded indigenous sports program within several Australian aboriginal groups. Rather than embracing the principle of critical immersion, they attempted to become objective researchers through setting aside the obvious cultural differences and inequalities with their research participants and to aim for universal connections by showing they were fellow humans with similar ideas, interests, and goals. The result of this approach had the opposite effect to that intended by the researchers; rather than setting aside their colonial mentalities they highlighted those mentalities. After realizing the effects White privilege and colonial approaches had upon their study, they began to look for ways to immerse themselves more deeply in the cultural differences and to develop ways of being more reflexive and critical of their roles within the research (Rossi et al., 2013). They restarted their approach to the research by "hanging out" with participants, getting to know them deeply by spending over two years in the field, respecting and honoring indigenous traditions and power dynamics (e.g. cultivating relationships with elders), and asking indigenous insiders to assist with critical reflection, research design, access to the field, and data collection, among other techniques (Rossi et al., 2013). Through implementing the elements of critical immersion the study moved from a colonizing project to a decolonizing one.

Participation and accountability

Participation and accountability involves researchers, based on personal and professional commitments to conduct ethical research, empowering individuals and communities to engage in all aspects of the research process. Participation assumes that indigenous people can and should be able to conduct analysis of their

experiences (Freire, 1968), and these data collection, analysis, and presentation activities are considered equally as or more valid than those of the researchers. Further, researchers serve to support these investigations as appropriate.

The desire of researchers to foster participation of indigenous peoples originates from their accountability to the indigenous research process. Accountability involves researchers' duty to justify actions and consider implications of design and interpretation decisions. Researchers are to consider their responsibility at both the individual and professional levels—the degree to which they are liable to personal morals as well as ethical codes set forth by professional organizations to which the researcher belongs (Bovens, 2007). Given this responsibility, researchers are motivated to ensure individuals and communities are active participants in the research process—from idea inception to data presentation.

According to Bovens (2007), participation and accountability as a bidirectional process involves several components within a process. First, researchers recognize the community's role in all phases of research and seek community members in both formal and informal positions that are perceived as being influential in community decision-making. Second, researchers solicit information about community strengths and resources as well as potential areas of research inquiry as applicable from various individuals. This action allows for empowerment and forums for indigenous peoples to decide what knowledge to share and how to present it. Thirdly, researchers explicitly state their conceptualization of accountability to individuals and communities involved in the research process, as well as how they envision fulfilling personal and professional duties while meeting community needs. Fourth, researchers are sensitive to the degree to which a "trauma response" exists toward the researchers or research process. Trauma responses may result from individuals or the community's previous experiences with research and/or the researchers, which could affect the quantity and quality of their participation. Finally, researchers disseminate and integrate research findings and actions in a mutually beneficial manner, although the indigenous community should receive a greater benefit from the research endeavor.

Using First Nations' conceptualization of health encompassing balance, harmony, holism, and spirituality, Shea et al. (2013) illustrated this principle in their community-based collaborative research with 20 adolescent First Nations females. Specifically, researchers involved the participants in all aspects of research design with an overarching goal to co-create knowledge concerning health, healthy bodies, and body image. During their investigation, Shea and colleagues identified elements of resilience in the participants' definitions of health in addition to adversities, to present a more empowered view of health. Additionally, they maximized participation by using multiple data collection methods (e.g. sharing circles, art collages, photovoice, interviews) and collecting data in a city that was close to several communities. Furthermore, they communicated with participants about their sense of accountability to the topic and represented the participants authentically in data presentation.

Methodological flexibility

To achieve the aforementioned principles, researchers are to employ flexibility and creativity in design decisions. Thus, *methodological flexibility* refers to researchers engaging in a variety of roles and using several “alternative” data collection, analysis and presentation techniques congruent with indigenous ways. Researchers “acknowledge the interconnectedness of physical, mental, emotional, and spiritual aspects of individuals with all living things and with the earth, the star world, and the universe” (Lavallée, 2009, p. 23).

Through this acknowledgement, it becomes evident that the conventional role of researcher as well as data collection methods and reporting approaches (e.g. interviews, observations, research manuscripts) may not be sufficient or appropriate for capturing indigenous research data. Researchers engaged in indigenous research practices can take on various roles as they correspond with participants, communities, and universities or other institutions. These roles include ally, advocate, learner, educator, counselor, or “conventional” researcher. As researchers navigate the research process, they may work with gatekeepers, involve community members as co-researchers, learn about knowledge systems, participate in ceremonies, distribute or receive gifts, or communicate with elders—requiring flexibility in roles beyond the “neutral” and “objective” interviewer, observer, or surveyor. Along with role flexibility, researchers are to engage in the research process as directed by the community in terms of both process and timeframe.

Researchers can use metaphors, symbols, artifacts, songs, and proverbs familiar to a community to understand, interpret, or convey indigenous knowledge systems. For example, Crawford (2012) analyzed Negro spirituals of the Gullah people of Saint Helena Island and highlighted various forms of suppression of the Gullah language and other changes in the spirituals over time. As another example, Hsia (2006) used traditional folk songs as a means of developing a deeper connection with Indonesian foreign brides in a study of a literacy program in Taiwan; after using a local folk tune to sing about the literacy project, the participants, who had difficulty opening up, became excited and asked to teach the researchers one of their own songs, thereby altering the research roles and developing buy-in from the participants. Furthermore, Lavallée (2009) employed symbols and artifacts to incorporate Cree, Ojibway, and Algonquin individuals; she included Anishnaabe symbol-based reflection as a data collection tool, asking participants to find or create visual symbols of their feelings and thoughts in a similar manner to photovoice. Several of her participants incorporated traditional symbols (e.g., Medicine Wheel, crafts such as soapstone carving) to illustrate their responses (Lavallée, 2009).

In addition, researchers can gather stories and counter-stories through conversations, interviews, and sharing or talking circles, and only with consent, be included within the research record. Oftentimes, this holistic process involves requesting information from participants about mind, body, spirit and general environment (Chilisa, 2012). For example, Kurtz (2013) showed how traditional talking circles helped to create a safe environment for urban Aboriginal women to discuss their healthcare experiences and make recommendations. In these circles,

elders and other community members shared their knowledge and stories. Another example that involves counter-storytelling is research exploring Chicana/Chicano graduate student perspectives on their education, as marginalized individuals, rather than focusing on stories of White students (Delgado, 1998). The process of counter-storytelling is in contrast to stories told by dominant (i.e., White, colonial) graduate students and permits challenges to the status quo, community building, demonstrates to other marginalized individuals the possibilities of graduate school, and teaches a richer story of graduate student life (Chilisa, 2012; Delgado, 1998).

Researchers can also creatively engage in methods that tie communities directly to the physical environment. For example, Chambers (1994) discussed several techniques common to participatory rural appraisal: transect walks and observation, performance of village tasks, mapping and modeling co-constructed with local people, participatory planning and budgeting, creation of informal and formal calendars to examine timelines and trends in sociological and agricultural activities, and scoring and ranking using natural artifacts such as seeds and stones. Another creative methodology involves developing questionnaires or other research protocols that better capture constructs as defined by a community. For example, Patel, Simunyu, Gwanzura, Lewis, and Mann (1997) developed the Shona Symptom Questionnaire, an indigenous measure of common mental disorders in Zimbabwe. The questionnaire development involved generating concepts of mental illness among local care providers, interviewing patients to ascertain idioms of distress of mental disorders, developing the items and involving bilingual content experts, pilot testing with patients, and administering and evaluating the measure using *etic* and *emic* criteria.

Researchers can also engage in creative data reporting practices such as creating stories from interview transcripts or using mixed media, such as multimedia writing or videos, to have individuals and communities express identity. For example, Jocson (2014) discussed the use of video poetry with youth of color in low-income communities to express their experiences and identity. Specifically, she discussed how one male in her after-school creative writing program wrote a poem about his slain brother and then developed a video to incorporate the verses to Internet images.

Future directions in indigenous research

Although this review has been limited, additional research is needed to explore how indigenous research practice is conceptualized and how the aforementioned guiding principles can be expanded and operationalized within future research. These guiding principles for indigenous research practices, having parallels with existing action research methodologies, call researchers to value and foster an indigenous identity within communities and themselves, support research paradigms that are congruent with indigenous values and research goals, embrace vulnerability while relinquishing power in all research design decisions, gain awareness of self and others through active participation and critical immersion, and convey a message

of research accountability to build respect for the process. These principles can overlap and are designed to involve various stakeholders (e.g., indigenous individuals and communities, researchers, nonindigenous participants) to help revise and expand research constructs using multiple ways of knowing. Future researchers are also encouraged to review other action research literature addressing similar issues and questions raised in this review. Future actionable research on the principles may address specific research questions detailed below by principle.

In terms of indigenous identity development, researchers can examine with individuals and communities how an indigenous identity is conceptualized, developed, and manifested in daily life as well as the research process. Sample research questions include the following: (a) what components constitute an indigenous identity, and how has that identity changed over time; (b) how do the stages of decolonization influence the research process; (c) how do researchers and participants view the impact of an indigenous identity; and (d) what are the benefits and challenges for the research process for integrating an indigenous identity?

With respect to research paradigms, additional research is needed that showcases indigenous paradigms as well as strives to adapt other research paradigms, as appropriate. Having available research that includes decolonizing paradigms provides other researchers with important models to further indigenous research agendas. Some research questions may include the following: (a) what are the benefits and challenges associated with implementing an indigenous paradigm in research design in general as well as using particular paradigms; (b) to what extent do indigenous methodologies correspond with various indigenous and nonindigenous paradigms; (c) how can various research paradigms be integrated in research; and (d) how can researchers engage in methodological flexibility in research designs with indigenous populations?

The researcher is to turn inward to investigate how he or she as a researcher, as well as an individual made up of particular cultural identities, is humble to the role of culture, privilege, oppression, and colonization. Specifically, there are challenges associated with shifts in perspective, and the following research questions may be warranted to explore: (a) how does the researcher envision being committed to an indigenous community before, during, and after a research initiative; (b) in what ways do participants' and researchers' conceptualization of power influence the research process; and (c) what researcher roles are conducive to shared power in the research process?

The critical immersion process offers multiple opportunities for research, as general research lacks in the role of prolonged engagement for maximizing trustworthiness. Specifically, researchers can attend to the three elements of critical immersion, empathy, active reflection, and re-experiencing of a culture, in several ways: (a) what elements of the research process served to influence researcher empathy; (b) what are preferred methods for conveying empathy and self-reflection in a research setting; (c) how do researchers re-experience a culture to promote the research process; and (d) what do indigenous individuals and communities consider the influence of critical immersion in the research process?

The principle of participation and accountability involves the researcher better understanding how to involve an indigenous community in generating and disseminating authentic research. Sample research questions might include the following: (a) how do indigenous communities participate in the research process; (b) what are the strengths and resources of particular indigenous communities; (c) what solutions do indigenous communities seek for various community-specific concerns; (d) what experiences of trauma have communities experienced from colonization as well as the research process itself; and (e) what affirmative research practices help to alleviate historical and contemporary experiences of trauma?

The final principle, methodological flexibility, challenges the researcher to be creative in measuring constructs conventionally understood through “standardized” and “validated” assessments and tools. Research questions that may be useful for this principle are as follows: (a) what research techniques are most congruent for specific indigenous populations; (b) how do data differ based on methods used in indigenous populations; (c) to what extent are conventional surveys incongruent with indigenous populations and how can surveys be adapted or reconstructed; and (d) what indigenous measures should be developed to evaluate community specific problems?

With regard to the quality of indigenous research methods and creating actionable research suggestions discussed within this paper, collaboration is a key component of the indigenous researcher toolbox, just as has been located in other action research methods like participatory action research and collaborative inquiry. One main component was absent from the course explored in this paper; direct collaboration with indigenous populations. To that end, future courses and projects exploring indigenous and critical research methods should incorporate the principles explored here to identify, seek permission from, and collaborate with indigenous research partners in ways that benefit the researched and the researcher according to the six identified tenets. Modeling research methods for students and scholars, affirming these methods with the co-authorship of indigenous participants, and developing new principles from indigenous paradigmatic lenses are essential steps to carrying these research guidelines forward in actionable ways. This process, itself using a reflexive lens to evaluate the researcher and the researched, will be key to “practicing what we preach” with regard to indigenous research, laid out in this paper. This will result in creating training models and practices for indigenous research, developed from principles derived from indigenous methods and parallel guidelines from related action research models, to include indigenous participants as co-authors, co-creators, co-researchers, and co-teachers within future action research.

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Authors' contribution

Guia Caliwagan, David J Ford Jr, Davide Mariotti, Joy Maweu Mwendwa and Wendy E Scott contributed equally to the paper.

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