Using Two-Eyed Seeing in Research With Indigenous People: An Integrative Review

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Abstract

Background: The Two-Eyed Seeing approach has been advocated for use in research with Indigenous people as it creates a space for Western and Indigenous ways of knowing to come together using the best of both worldviews to aid understanding and solve problems. Foundational literature presents its use as a promising way to promote ethical exchanges between Indigenous and non-Indigenous people, but the practical application of its concepts to research remains vague. Method: This integrative review, using the Whittemore and Knaf1 approach, describes the state of the literature pertaining to the interpretation and application of Two-Eyed Seeing. Following a search of the literature, 37 articles were selected for inclusion, and primary studies (n = 11) were critiqued for quality. Data were extracted, analyzed, and synthesized into themes. Results: Three themes were compiled from the literature including (a) defining characteristics of Two-Eyed Seeing, (b) suggested attributes of those engaging with Two-Eyed Seeing, and (c) the application of Two-Eyed Seeing in research. Conclusions: This review demonstrates inconsistencies in how to date researchers have interpreted and applied Two-Eyed Seeing in research with Indigenous people. The collection of key attributes of researchers and application procedures to research discussed in this review present a new standard for the application of Two-Eyed Seeing to research with Indigenous people. Researchers using Two-Eyed Seeing should thoroughly describe their application of its concepts to promote its maturation into a well-defined framework for research with Indigenous people.

Keywords

community-based research, critical theory, ethical inquiry, methods in qualitative inquiry, participatory action research

Background

Two-Eyed Seeing, introduced by Mi’kmaq Elders, Albert, and Murdena Marshall, from Unamâ’ki (Cape Breton), Nova Scotia, Canada, in 2004, stresses the importance of viewing the world through both Western (what is considered to be mainstream) and Indigenous worldviews (Bartlett, Marshall, & Marshall, 2012). Initially, the use of Two-Eyed Seeing was developed and promoted as a strategy to encourage the participation of Mi’kmaq university students in pursuing the study of science, valuing and including both Indigenous and Western ways of knowing in relevant science curricula (Bartlett et al., 2012). While its roots are Mi’kmaq, Two-Eyed Seeing seeks to bring together various Indigenous and Western perspectives and ways of knowing and is not exclusive to Mi’kmaq worldviews (Bartlett et al., 2012). Since its development, the use of Two-Eyed Seeing as a guiding framework for delivering education to, as well as conducting research with, Indigenous people has been advocated by numerous organizations and institutions including the Canadian Institute for Health Research, the Natural Sciences and Engineering Research Council, and the Social Sciences and Humanities Research Council (Bartlett et al., 2012).

Various terms have been used in the literature to describe this approach, including an ethical protocol, a guiding principle, and a framework. For the purpose of clarity, Two-Eyed Seeing will be referred to as a framework in this article. A discussion of this terminology is included further on. Other concepts included in this review include Indigenous ways of

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knowing and worldviews. Indigenous ways of knowing describe the ways in which Indigenous people come to understand the world around them, and these can vary between cultures and individuals (Dehaas, 2018). Indigenous ways of knowing can be difficult to define, particularly by non-Indigenous people who tend to interpret ways of knowing, such as dreams or visions, through a Western lens (Dehaas, 2018). Finally, the term worldview describes one’s philosophy of the world, how the world is understood, interacted with, and perceived (Hart, 2010).

Two-Eyed Seeing stresses the importance of viewing the world through one eye using the strengths of Indigenous worldviews and with the other eye using the strengths of Western worldviews, to see together with both eyes to benefit all (Bartlett et al., 2012). A weaving of perspectives is emphasized, with both having equal importance, but acknowledging that in some instances, one perspective may further our understanding of a specific concept or situation more than the other (Bartlett et al., 2012).

Researchers are encouraged to learn how to weave back and forth between Indigenous and Western ontologies, epistemologies, and methodologies as required. The authors use a visual of two jigsaw pieces intersecting, one not having a larger portion of the “big picture” than the other, but both contributing equitably important perspectives to the phenomenon of study (visual available online at http://www.integrativescience.ca). Four big picture philosophical questions, including integrating ontology, epistemology, methodology, and overall knowledge objectives, have been visually depicted by the developers of Two-Eyed Seeing in an online format for learners (Institute for Integrative Science & Health, 2013). The first, Indigenous ontology is depicted as interconnected and animate, consisting of a constant balance between spirit, energy, and matter, while Western ontology is depicted as objects consisting of their parts and wholes, in constant evolution (Institute for Integrative Science & Health, 2013). In the second big picture philosophical question, Indigenous epistemology is described as relational, respectful, and reciprocal, while Western epistemology is based on hypothesis and theory construction (Institute for Integrative Science & Health, 2013). Although Western epistemology has been defined in this way by the developers of Two-Eyed Seeing, not all Western research is based on hypothesis or theory construction. Examples include most qualitative and community-engaged approaches to research, which commonly recognize knowledge construction as relational and reciprocal and aim to inductively create meaning and understanding (Creswell, 2013). Yet Wilson (2008) stresses that differences between Western and Indigenous ontologies and epistemologies remain. He describes Western ontology as being external, or “something out there,” while Indigenous ontology stresses one’s relationship to reality (p. 73). Wilson (2008) illustrates this difference using language; in English, a “pen” is described using a single word, while the word in Cree translates to “something that you write with” (p. 73). This example highlights a distinct difference between Western ontology—an external object—and Indigenous ontology—one’s relationship to the object. Similarly, Indigenous epistemologies also reflect a relational approach to the world and are believed to be eternally available through ancestors, dreams, and visions (Cardinal, 2001). It is not surprising, then, that Indigenous axiology emphasizes relational accountability and that Indigenous research methodologies hold this to the highest regard. Therefore, while some Western approaches to research may appear to align with Indigenous worldviews, their roots are distinctly different, and thus, Western researchers continue to struggle to fully grasp relational ontologies and epistemologies to the extent emphasized by Indigenous worldviews (Martin, 2012; Wilson, 2008). Two-Eyed Seeing can assist in bridging this gap of understanding through bringing together both Indigenous and Western worldviews in a collaborative and equitable approach to research.

In the third big picture philosophical question, as described by Albert and Murdena Marshall, the founders of Two-Eyed Seeing, Indigenous methodologies consist of a weaving of patterns within nature and relationships among love, land, and life, while methodologies in Western science tend to unravel nature’s patterns to understand them and to build models to explain the interactions of their components (Institute for Integrative Science & Health, 2013). Finally, goals from Indigenous perspectives are collective, with the purpose of understanding and sustaining the environment, while Western goals tend toward what is testable and constructible to understand how the world works (Institute for Integrative Science & Health, 2013).

Researchers to date have developed their own interpretations of Two-Eyed Seeing and what its application to research with Indigenous peoples entails (Clark, 2014; Hatala et al., 2017; Marsh, Cote-Meek, Young, Najavits, & Toulouse, 2016; Martin, Thompson, Ballard, & Linton, 2017; Peltier, 2018). Although Two-Eyed Seeing has been described from a theoretical and philosophical standpoint in numerous articles, guidance within the methodological literature remains vague on its practical application. This has resulted in inconsistent practices among researchers on how Two-Eyed Seeing is interpreted and applied in research. Therefore, the purpose of this integrative review, guided by the Whitemore and Knafl (2005) approach, is to address this disparity and clarify how Two-Eyed Seeing has been interpreted and applied by researchers to date. The Whitemore and Knafl’s (2005) approach involves five stages: (a) problem identification, (b) literature search, (c) data evaluation of quality, (d) data analysis, and (e) data synthesis. Having clearly defined the problem, the following describes the remaining four stages of the approach.

Method

Literature Search

Following the initial identification of the problem—the lack of a decisive interpretation and application of Two-Eyed Seeing to research—a systematic search of the literature was completed using OVID Healthstar, Embase, Medline, CINAHL, and Pubmed databases and the search term “Two-Eyed Seeing.” Additional search terms were not used as they
narrowed the results significantly and did not result in additional relevant articles. Articles were included if they were published in English prior to December 2018, regardless of discipline or article type, and if authors discussed their interpretations and/or applications of Two-Eyed Seeing in any context. Once duplicate articles were removed; all articles underwent an assessment of relevancy by reviewing the titles and abstracts. Following a full-text review, articles were excluded if authors did not substantively discuss their interpretation or application of Two-Eyed Seeing (see Figure 1).

Data Evaluation of Quality

Included studies that were primary research (nine qualitative studies, one quantitative study, and one mixed-methods study) were critically appraised for quality using a relevant tool from the Critical Appraisals Skills Programme (2017a, 2017b) library of appraisal tools. Any included mixed-methods studies were appraised using the tool developed by Pluye, Gagnon, Griffiths, and Johnson-Lafleur (2009). The quality appraisal was conducted to validate the quality of the extracted data included in the data analysis and synthesis of findings but did not influence their inclusion in the analysis itself.

Data Extraction and Data Analysis

Data relating to the interpretation and application of Two-Eyed Seeing were extracted separately from each article and further separated into educational and scientific research disciplines (see Table 1). During data analysis, data relating to the
### Table 1. Interpretations and Applications of Two-Eyed Seeing in the Literature.

| Author(s) | Methodology/Study Design | Definitions of Two-Eyed Seeing | Applications of Two-Eyed Seeing |
|-----------|--------------------------|-------------------------------|--------------------------------|
| Bartlett, Marshall, and Marshall (2007) | Report of integrative science program at Cape Breton University, Nova Scotia | • Must understand commonalities between Indigenous and Western perspectives and respect differences  
• Journey together  
• Co-learning  
• A weaving back and forth between the best of both worldviews  
• Those with different perspectives need each other  
• Co-learning  
• A weaving back and forth of Indigenous and Western perspectives  
• Promotes creating a better place in the world  
• Holistic—Involves every aspect of life  
• All perspectives are valuable and can contribute to learning, known as 10-eyed seeing | • We all need each other  
• Learning must be by doing  
• Knowledge gardening—sharing and growing knowledge among others  
• Visuals assist in understanding  
• Integrate Indigenous knowledge into curriculums and programs  
• Teachers must involve Indigenous Elders and knowledge holders to ensure accurate information is integrated into curriculum  
• Active learning strategies  
• Requires a advisory council of stakeholders willing to participate and assist in curriculum development  
• Visuals assist in learning |
| Bartlett, Marshall, and Marshall (2012) | Lessons learned through Integrative Science program at Cape Breton University, Nova Scotia | • Ontologies—Indigenous as interconnected, Western as parts and wholes  
• Epistemologies—Indigenous as holistic, ceremony, relationships, and responsibilities; Western as hypothesis making and testing, data collection, analysis, and creating theory  
• Languages and methodologies—Indigenous as weaving nature’s patterns through relationships and Indigenous language; Western as unweaving patterns using logic instruments and tools using rigor  
• Knowledge objectives—Indigenous as living, located within the natural environment; Western as testable theory allowing for prediction and control, constructing an understanding of how the world works  
• Co-learning from similarities and differences in worldviews  
• Holistic  
• Holding hands with one another as trees hold hands underground with their roots  
• No person has all the knowledge, we all share a piece of the puzzle | • Use of visuals to facilitate learner’s understanding of different worldviews  
(suggest four visuals based on four big understandings as noted in previous column) |
| Bartlett, Marshall, Marshall, and Iwama (2015) | Further description of the Integrative Science program at Cape Breton University, Nova Scotia | • Two-Eyed Seeing assists in avoiding conflict between different knowledges  
• Holistic approach  
• Multidisciplinary, multidirectional, multisensory  
• Promotes co-learning and transformative learning | • Learning is personally meaningful to students  
• Students create knowledge  
• Learning environment is culturally safe  
• Use of learning circles, ceremony  
• Knowledge gardening—Indigenous Elders and knowledge holders share knowledge with students so as to keep the knowledge alive  
• Teachers must have cultural competence—respectful of other’s viewpoints  
• Teachers should gain insight from Elders and knowledge holders  
• Allow for equal time spent on minority thinking and mainstream, not as an add-on  
• Non-Indigenous researchers must listen, be patient, and be willing to participate in research under the leadership of Indigenous people |
| Hatcher, Bartlett, Marshall and Marshall (2009) | Application of Two-Eyed Seeing in Integrative Science curriculum in Nova Scotia | • Using the strengths of both Indigenous and Western ways of knowing  
• Respecting differences, seeking commonality  
• Creates bridge between these ways of knowing  
• Avoids dominance and assimilation  
• Way to incorporate minority cultures into education  
• Not merely a merging of perspectives  
• Not taking bits of Indigenous knowledge and applying to Western  
• Equal consideration of the best of each perspective to leave the world a better place  
• Decolonizing approach  
• Co-learning—each perspective is important | |
| Hatcher and Bartlett (2010) | Application of Two-Eyed Seeing to Canadian education to provide cultural bridges and culturally safe learning environment for Indigenous students | | |
| Iwama, Marshall, Marshall, and Barlett (2009) | Discussion of Two-Eyed Seeing as opportunity to improve and restore health and make the University environment more welcoming | | |

(continued)
| Author(s)                  | Methodology/Study Design                                      | Definitions of Two-Eyed Seeing                                                                 | Applications of Two-Eyed Seeing                                                                 |
|---------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| **Curriculum development (n = 3)**                                                                                                                                  |
| Kapyrka and Dockstator    | Application of Two-Eyed Seeing to environmental education     | • Allows for building relationships between Indigenous and Western thinkers                     | • Indigenous knowledges form foundation of curriculum                                          |
| (2012)                   |                                                               | • Promotes reconciliation                                                                      | • Indigenous Elders involved to provide expert knowledge                                       |
|                           |                                                               |                                                                                               | • Indigenous pedagogies, epistemologies, languages                                             |
|                           |                                                               |                                                                                               | • Land-based curriculum                                                                         |
|                           |                                                               |                                                                                               | • Holistic approach to courses                                                                  |
|                           |                                                               |                                                                                               | • Use of storytelling as pedagogy                                                                |
|                           |                                                               |                                                                                               | • Students and instructors must locate themselves in their own histories, contexts, beliefs, and values |
|                           |                                                               |                                                                                               | • Non-Indigenous educators must seek expert knowledge from Indigenous Elders and knowledge holders  |
|                           |                                                               |                                                                                               | • Non-Indigenous teachers may poorly integrate Indigenous concepts into curriculum and further enforce negative stereotypes |
| McKeon (2012)             | Applying Two-Eyed Seeing in elementary education              | • Co-learning journey                                                                            | • Integrating storytelling                                                                      |
|                           |                                                               | • Requires self-location of those involved, examining one’s own beliefs and values and examining these in comparison with another’s differing perspectives | • Holistic approach                                                                             |
|                           |                                                               | • Early ideas of how best to integrate Indigenous ways of knowing into mainstream curriculum (not based on Two-Eyed Seeing framework) | • Providing land-based education                                                                |
|                           |                                                               | • Both perspectives share commonalities                                                          | • Working in collaboration with an Indigenous Elder                                              |
|                           |                                                               |                                                                                               | • Non-Indigenous teachers may not feel comfortable integrating Indigenous knowledge into curriculum as they are not familiar with these concepts |
|                           |                                                               |                                                                                               | • Non-Indigenous teachers may not have resources like Indigenous Elders to go to for advice and support |
| Stephens (2000)           | Handbook for how to create a culturally responsive science curriculum |                                                                                               | • Integrating Indigenous concepts into mainstream curriculum must involve Indigenous Elders and knowledge holders |
|                           | Early ideas and contributions to Two-Eyed Seeing               |                                                                                               |                                                                                                 |
|                           |                                                               |                                                                                               |                                                                                                 |
| **Scientific research studies**                                                                                                                                     |
| **Qualitative studies (n = 9)**                                                                                                                                 |
| Cabrera, Beattie, Dwosh, and Illés (2015) | A qualitative approach to understanding how FN group affected by early onset familial Alzheimer disease understands the condition and related health behaviors | • Theoretical framework                                                                          | • Two-Eyed Seeing framework provides rationale for appreciating and valuing both Indigenous and Western perspectives |
| n = 48                    |                                                               | • Appreciation for the contributions of both Indigenous and Western ways of knowing             |                                                                                                 |
|                           |                                                               | • Can be used to understand differences between health approaches, environmental planning, education, and changing policy |                                                                                                 |
| Carter, Lapum, Lavallée, Schindel Martin, and Restoule (2017) | Narrative study of factors contributing to Indigenous men living in urban areas and their ability to live a balanced life | • Strengths-based approach                                                                      | • First author (non-Indigenous researcher) and research team engaged in self-location prior to embarking on research |
| n = 3                     |                                                               | • Multiple viewpoints                                                                           | • University ethics approval                                                                     |
|                           |                                                               | • Respect for each perspective as valid                                                          | • Narrative approach and use of storytelling in line with Indigenous ways of knowing            |
|                           |                                                               | • No one viewpoint dominates another                                                            | • Advisory committee with three Indigenous people supported research                            |
|                           |                                                               | • Promotes creativity in problem-solving                                                        | • Participant recruitment completed by Advisory committee                                       |
|                           |                                                               |                                                                                               | • Use of Anishinaabe symbol-based reflection as method                                           |
|                           |                                                               |                                                                                               | • Member checking with participants                                                              |
|                           |                                                               |                                                                                               | • Way to integrate Inuit perspectives into Western system through valuing Indigenous perspectives |
|                           |                                                               |                                                                                               | • Included Inuit members as participants                                                          |
|                           |                                                               |                                                                                               | • Modified traditional grounded theory methodology to include Indigenous epistemologies         |
|                           |                                                               |                                                                                               | • Research team as co-creators of knowledge                                                       |
|                           |                                                               |                                                                                               | • Community advisory research committee (parents, Elders, local youth) informed research          |
|                           |                                                               |                                                                                               | • Research in line with local customs                                                             |
|                           |                                                               |                                                                                               | • Relational accountability—smudging and traditional prayer offered at the start of interviews  |
|                           |                                                               |                                                                                               | • Western and Indigenous honorariums                                                              |
|                           |                                                               |                                                                                               | • Strong relationships between researchers and youth                                              |
| Clark (2014)              | Needs assessment of Inuit population on how best to make electronic health records more accessible and usable for Inuit in Manistoba | • Draws on strengths of Indigenous and Western perspectives                                     |                                                                                                 |
| n = 14                    |                                                               | • Integrates linguistic components of health                                                    |                                                                                                 |
|                           |                                                               | • Indigenous and Western worldviews working alongside one another                              |                                                                                                 |
|                           |                                                               | • Bridges Indigenous and Western knowledge                                                      |                                                                                                 |
|                           |                                                               | • Benefited by seeing through the strengths of both perspectives                               |                                                                                                 |
|                           |                                                               | • Allows for open and honest conversations of the roles of both perspectives                  |                                                                                                 |
| Hatala et al. (2017)       | Qualitative grounded theory and Indigenous methodology looking at time orientations and constructions of youth and how this relates to their resilience |                                                                                               | (continued)                                                                                      |
| Author(s) | Methodology/Study Design | Definitions of Two-Eyed Seeing | Applications of Two-Eyed Seeing |
|----------|--------------------------|-------------------------------|-------------------------------|
| Marsh, Cote-Meek, Young, Najavits, and Toulouse (2016) | The effectiveness of Indigenous healing methods with preexisting intervention for intergenerational trauma and substance use | - Promotes inclusion of the best of both Indigenous and Western worldviews  
- Promotes understanding and respectful collaboration  
- Encourages Indigenous and Western thinkers to build respectful relationships based on respect to promote healing | - Integration as noted below in Marsh, Cote-Meek, Toulouse, Najavits and Young (2015) |
| Martin, Thompson, Ballard, and Linton (2017) | Qualitative case study investigating impact of forced displacement on lived experience of Elders in Manitoba | - Multiple perspectives  
- Influences research questions  
- Promotes indigenized research methods  
- Promotes community-based participatory methodologies  
- No one perspective is more valid than another  
- Promotes self-reflection to critically examine one’s perspective  
- Research process must involve ethical space—allowing for respectful engagement and dialogue | - Participatory framework  
- Collaboration with Chief and local council  
- Mutually respectful relationships  
- Shared research responsibilities as well as benefits  
- Community advisory board included Indigenous Elders and guided study  
- University and community ethics board approval  
- Honored oral tradition through data collection methods  
- Data analysis from multiple perspectives  
- Strengths-based approach  
- Well-established relationship with community  
- Community based with community engagement occurring well before study  
- Grounded in Inuit worldviews  
- Advisory group and community wellness committee helped guide the research  
- Participants involved in decision-making (data collection, data analysis, timelines of the research and knowledge translation)  
- Allowed for community healing  
- Integration of local community customs such as community feast and storytelling | |
| Rand (2016) | Community-based participatory research, qualitative study investigating Inuit women’s sexual health/sexually transmitted infection risk | - Bringing together of multiple worldviews  
- Draws on the strength of both worldviews | - Health providers with Western and Indigenous perspectives collaborate to provide health care to Indigenous people  
- Merge traditional healing practices with Western services within the same facility  
- Understand and value each other’s perspectives and cultures  
- Value ongoing teaching  
- Active listening and open communication  
- Must be willing to engage with change in order to have a positive effect on the lives of Indigenous people  
- Acknowledge and appreciate differences  
- Inclusive and supportive environment  
- Requires adequate resources and funding  
- Holistic approach to health care  
- Equitable approach, shared decision-making Holistic approach to data analysis  
- University and community ethics board approval  
- First author had long-term relationships within community  
- Community involvement with recruitment  
- Participants assisted in data analysis  
- Member checking to ensure rigor | |
| Whiting, Cavers, Bassendowski, and Petruka (2018) | Qualitative study exploring how Two-Eyed Seeing is enacted in a Western/Indigenous collaborative approach to health care | - Weaving of Indigenous and Western knowledges  
- Promotes a shared journey  
- Maximizes co-learning  
- Meet challenges through utilizing both ways of knowing | - Providing health care to Indigenous people, nurses, and other health providers in the same health facility  
- Bringing together the strengths of both Indigenous and Western ways of knowing | |
| Whitty-Rogers, Caine, and Cameron (2016) | Participatory action research, qualitative hermeneutic phenomenology study of Mi’kmaq women’s experiences with GDM | - Seeing from the best of both Indigenous and Western perspectives  
- Valuing relationships  
- Respect of culture and heritage  
- Honoring oral tradition | - Partnership with FN community  
- Collaborative intervention with FN nurse and nurse from local hospital  
- University and community ethics approval | |

Quantitative studies (n = 1)

| Hunt et al. (2018) | Quasi-experiment time series study to determine effectiveness of intervention on knowledge retention pertaining to concussion head injury | - As a principle  
- Bringing together the strengths of both Indigenous and Western ways of knowing | - Partnership with FN community  
- Collaborative intervention with FN nurse and nurse from local hospital  
- University and community ethics approval | (continued) |
| Author(s) | Methodology/Study Design | Definitions of Two-Eyed Seeing | Applications of Two-Eyed Seeing |
|-----------|--------------------------|--------------------------------|---------------------------------|
| Mantyka-Pringle et al. (2017) | Ecological study (multimethod: Bayesian Belief Network model and focus groups) looking at understanding water quality in Slave River, Northwest Territories | Can be used to bridge Indigenous and Western understandings of water quality and science by seeing from the best of both worldviews to create new understanding | Use of Bayesian Belief Networks applied to social-ecological problems can assist in developing problem-solving strategies. Incorporating Western and Indigenous perspectives into this type of network can help to explore both perspectives leading to a more holistic understanding of a problem, creating new innovative strategies, and building relationships between stakeholders. Consideration and respect of differing Indigenous perspectives (Elders, local community members invited to participate alongside scientists and members of government) in an otherwise Western-oriented space. Led to better understanding of water-quality and potential problem-solving strategies. |
| Chambers et al. (2018) | Scoping review of decolonizing research methods | Uses the strengths of both Indigenous and Western ways of knowing | n/a |
| Chatwood et al. (2015) | Review of mixed-methods study integrating Indigenous and Western ways of knowing to identify Indigenous values relating to health systems stewardship in circumpolar regions | A mixed-methods framework can assist in combining Indigenous and Western approaches to research. Two-Eyed Seeing as a set of guiding principles. Require further development in research methods. Respond and resolve conflicts between Indigenous perspectives and Western evidence-based health care. | Collaborative development of research question with researchers and Indigenous participants. Traditional Indigenous knowledge holders included in group of experts with clinicians and policy makers. Indigenous scholars as investigators with expertise and knowledge. Indigenous presentation of data via film, photographs, stories (rather than typical Western data presentations). Research process co-facilitated by traditional knowledge holder. Participants moved between lecture-based activities and land-based activities. |
| Fornsler et al. (2018) | Reflection paper on application of Two-Eyed Seeing and decolonizing research methodology to project on integrating Indigenous culture as an intervention in addictions treatment | Weaving Indigenous and Western perspectives and understandings to create new understanding and insight. Integrating Indigenous holistic view with Western deductive view. | Difficulty enforcing Indigenous governance within Western funding models and with Western researchers. Valuing oral tradition, use of storytelling method. Elders and knowledge keepers lead research process. Centering research on FN creation story. Lessons learned of how best to apply Two-Eyed Seeing: (a) encouraging honesty between group members, (b) maintaining separateness by acknowledging and validating different perspectives, and (c) exchanging gifts (building relationships, participating in ceremony and sharing meals). |
| Hall et al. (2015) | Methodology paper on application of Two-Eyed Seeing to project on integrating Indigenous culture as an intervention in addictions treatment | Collaborative research process. Flexible. Opportunity for Western science to commit to FN-governed research. Decolonizing. Indigenous research methodology. Contributes to Indigenous self-determination. Respects OCAP. Research as ceremony. Guiding concept, process of learning, not protocol. Supports Indigenous culture, ties to land and language. | Used to promote FN governance. Use of Western research tools but not in place of FN governance. Reclaim Indigenous understandings of evidence-based research. Strength-based approach. FN lens was “right lens” versus Western lens. Elder-directed data collection. Western researchers were observers and recorders only. Indigenous methods (storytelling). Use of ceremony and traditional teaching throughout data collection (creation story, smudging, sweat lodges). Data analysis completed by Western researchers confirmed by Indigenous researchers. |
| Author(s) | Methodology/Study Design | Definitions of Two-Eyed Seeing | Applications of Two-Eyed Seeing |
|-----------|--------------------------|-------------------------------|--------------------------------|
| Hovey, Delormier, McComber, Lévesque, and Martin (2017) | Use of Two-Eyed Seeing in a community-based research project on diabetes prevention | • Ethical space for health promotion • Promotes finding common ground between different perspectives • Different perspectives are woven into new understanding • Not merely a method or a prescriptive list • Requires relational approach, sharing of ideas • Using both Indigenous and Western perspectives at the same time | • Focus on community healing and growth • Opportunity for Western researchers to engage with Indigenous worldviews (participation in traditions, teachings, and ceremonies) • Patience key to allow for Indigenous timeline • University and community ethics board approvals • Community advisory group • Use of traditional Haudenosaunee decision-making process • Humility and belief in equality • Commitment to project |
| Hyett, Marjerrison, and Gabel (2018) | A review of the history of Indigenous health research in Canada Position paper establishing the need for Indigenous perspective of children’s pain as Western perspectives may be inadequate, leading to misunderstanding and inadequately treated pain in Indigenous children | • As combining the best of both worldviews | • As rationale for importance in understanding Indigenous children’s unique perspectives on pain |
| Lemke and Delormier (2017) | Position paper arguing for the application of Two-Eyed Seeing as a framework to equitably bridge both knowledge systems to the betterment of food security for Indigenous people | • Based on respect, responsibility, valuing of equitable relationships • Bridges the divide between worldviews | • Future research in food security should embrace the principles of Two-Eyed Seeing to benefit Indigenous people |
| Marsh, Coholic, Cote-Meek, and Najavits (2015) | Review of the literature examining how traditional Indigenous healing has been integrated with Western treatment models for intergenerational trauma and substance-use disorders | • Both Indigenous and Western approaches are required for research, knowledge translation, and program development • A Two-Eyed Seeing approach can be taken to blend Indigenous healing methods with Western treatments for substance use | • First author/researcher locates themselves in their own context, worldview, beliefs, and values as Indigenous person not from Canada • Consulted with Indigenous researchers and scholars throughout research • Advisory group • University ethics approval • Consultation/working with Indigenous Elders—inorporated traditional and spiritual healing practices, research was appropriate for local Indigenous community, guidance on research process, traditional knowledge, ceremonies to promote healing • Enacted relational accountability—researcher responsible for well-being of participants, maintain relationships • First author built relationships for 1 year prior to initiating research, offered tobacco to participants as sign of respect and appreciation for their time • Advisory group of community members—Guided entire research project • Incorporated ceremony and teaching by Elders when training facilitators • Elders informed research setting • Appropriate intervention for integration with Indigenous practices: Creator of Seeking Safety model (Western intervention) encourages incorporation of local culture and traditions into intervention • Consideration of commonalities and differences between different ways of knowing |
| Martin (2012) | Review article on differing philosophies and place for Two-Eyed Seeing | • Involves engagement of Indigenous people in research and in knowledge creation • Promotes action-based research • Grounded in constructivist paradigm and the presence of multiple realities • Promotes multiple epistemologies by bringing together different types of knowing • Co-learning—learns from each other and different epistemologies and ontologies | • Researcher engaged in reflexivity to reflect on own values and beliefs and how to integrate these with other perspectives |
| Paraschak and Forsyth (2010) | Insights from qualitative study on how Indigenous women experience sport | • Balance of Indigenous and Western worldviews on science and technology together both perspectives can be used to better care for the natural environment | • Use of Two-Eyed Seeing provides rational for Indigenous women’s perspectives of sport being equally as valid as those of mainstream women |

(continued)
| Author(s)            | Methodology/Study Design                                                                 | Definitions of Two-Eyed Seeing                                                                 | Applications of Two-Eyed Seeing                                                                                                                                                                                                                                                                                                                                 |
|---------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Peltier (2018)      | Participatory action research using Indigenous research methodology. Review of application of Two-Eyed Seeing to research study examining Indigenous peoples’ experiences with cancer | • Seeing from Indigenous eye and Western eye to use the strengths of both together  
• Co-learning                                                                 | • Indigenous methods (conversation method)  
• Integration of Indigenous knowledge and Western theory  
• Use of participatory action research as compatible with Indigenous methods  
• Privileged Indigenous knowledge  
• Researcher in relationship (researcher knew participants and had authentic trusting relationships with them, ongoing responsibility to community)  
• Ongoing consultation with community members, Elders; design of study, equal partners; community ethics board, community as stewards of data; research as building community research capacity  
• Formation of community advisory group  
• Applied four Rs of research: respect, reciprocity, relevance, and responsibility (Kirkness and Barnhardt, 1991)  
• Research as emancipatory  
• Decolonizing outcomes  
• Grounded in ceremony  
• Traditional and local consent process (along with formal University ethics and consent process)  
• Meaning-making framework to reflect Indigenous knowledge—created collective story from participants’ stories related to dealing with cancer  
• Results vetted by participants  
• Culturally safe  
• Balanced team of Western and Indigenous researchers  
• All researchers comfortable with spiritual element of wellness  
• Scoping design selected to allow for the inclusion of content-rich literature (rather than only high-level evidence) important to Indigenous scholars  
• Research question developed through integration of Indigenous and Western perspectives (Indigenous knowledge + Western quality standards of evidence)  
• Indigenous-led, Western tools to search literature and screen studies  
• Favored Indigenous ways of knowing  
• Cultural experiences (prayers, ceremony) incorporated into group participation of scoping review  
• Differences in education between Indigenous and Western researchers led to challenges and unintended tensions |
| Rowan et al. (2015) | Scoping review of cultural interventions as treatment for addictions                       | • Bringing together the best from Western and Indigenous perspectives  
• Little guidance of how to do this in the literature                                                                 | • Results vetted by participants  
• Culturally safe  
• Balanced team of Western and Indigenous researchers  
• All researchers comfortable with spiritual element of wellness  
• Scoping design selected to allow for the inclusion of content-rich literature (rather than only high-level evidence) important to Indigenous scholars  
• Research question developed through integration of Indigenous and Western perspectives (Indigenous knowledge + Western quality standards of evidence)  
• Indigenous-led, Western tools to search literature and screen studies  
• Favored Indigenous ways of knowing  
• Cultural experiences (prayers, ceremony) incorporated into group participation of scoping review  
• Differences in education between Indigenous and Western researchers led to challenges and unintended tensions |
| Vukic, Gregory, and Martin-Misener (2012) | Theoretical paper describing Two-Eyed Seeing and Indigenous health research               | • Two-Eyed Seeing as ethical space for co-creation of knowledge  
• Common ground between researcher and participants  
• In line with community-based participatory research: equitable power relationships, co-creation of knowledge, collaboration with community members, research of priority to the community, use of advisory team in data collection and analysis, ownership, control, access, and possession (OCAP)                                                                 | n/a                                                                                                                                                                                                                                                                                                                                                        |
| Editorial papers (n = 2) |                                                                                        |                                                                                              |                                                                                                                                                                                                                                                                                                                                                           |
| Fraser (2012)       | Magazine article; description of Albert Marshall and Two-Eyed Seeing                     | • “Combine knowledge of the physical world with wisdom from the spiritual world” (p. 17)  
• Offers a more comprehensive way of describing environmental impacts and promotes healing  
• Reminds people there is an alternative viewpoint  
• Set of ethical protocols  
• Respect Indigenous worldviews  
• Reflexive  
• Ethical space  
• Decolonizing  
• Interpreting data within Indigenous context                                                                 | n/a                                                                                                                                                                                                                                                                                                                                                        |
| Hall (2015)         | Opinion piece                                                                            |                                                                                              |                                                                                                                                                                                                                                                                                                                                                           |

Note. FN = First Nation; GDM = Gestational Diabetes Mellitus; OCAP = Ownership, Control, Access and Possession.
interpretation and application of Two-Eyed Seeing were analyzed separately and compared for similarities and differences. The constant comparison method as described by Miles and Huberman (1994) was used during this stage, comparing each piece of datum to another. Similarities in the groupings were initially sorted into codes and then further grouped into themes during the later stage of data analysis. Three nonresearch education articles were excluded during analysis of data concerning the application of Two-Eyed Seeing in primary research (Kapyrka & Dockstator, 2012; Mckeon, 2012; Stephens, 2000), as these authors’ application of Two-Eyed Seeing was related to curriculum development and not scientific research. The following is a presentation of the synthesis of the data in the form of themes.

Results

A total of 76 articles were screened by title and abstract for inclusion in the review. Following this initial screening process, 38 articles were excluded as they did not meet the inclusion criteria of describing the authors’ interpretation and/or application of Two-Eyed Seeing. A full-text review of the remaining articles (n = 38) resulted in the exclusion of one article as the authors did not substantively discuss their interpretation or application of Two-Eyed Seeing (see Figure 1). A final 37 articles were included in the review, consisting of 6 foundational articles authored by the developers of Two-Eyed Seeing, 3 articles describing the application of the framework to education curriculum development, 11 articles describing primary research (9 qualitative studies, 1 quantitative study, 1 mixed-methods study), 15 reviews, and 2 editorials. Numerous disciplines were represented, including education, medicine, nursing, anthropology, and environmental studies. Review articles consisted of literature reviews of Two-Eyed Seeing (n = 6) and discussions on the real or theoretical application of Two-Eyed Seeing to primary research studies (n = 9).

Results from the data evaluation exercise revealed that all but one of the qualitative studies (n = 9; Clark, 2014) demonstrated moderate to high methodological quality. Study limitations included inadequate descriptions of study methodology by four studies (Cabrera, Beattie, Dwosh, & Illis, 2015; Clark, 2014; Marsh et al., 2016; Rand, 2016), inadequately addressing the potential influence of differences between the researcher and participants by three studies (Cabrera et al., 2015; Clark, 2014; Whiting, Cavers, Bassendowski, & Petrucka, 2018), and insufficiently describing how rigor was maintained during data analysis in five studies (Cabrera et al., 2015; Clark, 2014; Marsh et al., 2016; Martin et al., 2017; Rand, 2016). The quantitative study, although of high quality, was not powered to show statistically significant results (Hunt et al., 2018). The mixed-methods study (n = 1) did not specify a mixed-methods research design and did not adequately address rigor in the data analysis of qualitative data (Mantyka-Pringle et al., 2017; see Table 2).

The following three themes emerged from the analysis and represent a synthesis of the data: (a) defining characteristics of Two-Eyed Seeing, (b) suggested attributes of those engaging with Two-Eyed Seeing, and (c) application of Two-Eyed Seeing in research. These themes are listed, along with a summary of key components, in Table 3.

Defining Characteristics of Two-Eyed Seeing

The original developers of Two-Eyed Seeing defined it as an equitable approach to shared perspectives in which all viewpoints are valued, an approach that extends the understanding of an integration of perspectives, using the best from each worldview, is holistic and requires a reflective approach. Those with differing worldviews must value working together with others to cocreate knowledge and learn from and appreciate each other’s differences. A holistic approach should be undertaken, considering the mind, body, and spirit, and individuals must be reflective, examining their own perspectives, worldviews, beliefs, and values. The analogy of trees holding hands beneath the ground (with their roots) is used to describe this joining together with one another despite our differences (Bartlett et al., 2012).

Since its inception, new authors engaging with Two-Eyed Seeing have agreed with these defining features and expanded further on concepts and terms. For example, several terms have since been used to describe the concept of integration including blending, weaving, and merging. Yet Iwama, Marshall, Marshall, and Bartlett (2009), one of the original authors of Two-Eyed Seeing, stress that this integration is not simply an amalgamation of perspectives in which pieces of Indigenous worldviews are merely pasted together with Western views, but that it is a thoughtful integration of the best each perspective has to offer to solve problems and benefit others. Two-Eyed Seeing has more recently been defined as a conscious integration of Indigenous knowledge and worldviews, reflected by action-based approaches, requiring flexibility on the part of the researcher, and involving the Indigenous community in research including traditions and ceremonies (Hall, Dell, Fornssler, Hopkins, & Mushquash, 2015; Martin, 2012). Despite being derived from a Mi’kmaw worldview, Two-Eyed Seeing has been viewed by researchers as inclusive and applicable to other groups with varied ways of knowing. Its Mi’kmaw roots are recognized by researchers as essential to the authentic development of the framework and its goals. Additionally, Two-Eyed Seeing has been considered a decolonizing approach, in that it privileges Indigenous knowledges, methodologies, and worldviews and seeks to critically analyze power inequities, promoting an equitable and collaborative approach to research with Indigenous people (Chambers et al., 2018; Hall et al., 2015; Iwama, Marshall, Marshall, & Bartlett, 2009; Kapyrka & Dockstator, 2012; Martin, 2012; Peltier, 2018). Other researchers interpret Two-Eyed Seeing as a strengths-based approach to research—conducting research with aims to abolish negative stereotypes of Indigenous people as being weak or vulnerable and emphasizing the strengths and resiliency of communities (Carter, Lapum, Lavallée, Schindel Martin, & Restoule, 2017; Chambers et al., 2018; Clark, 2014; Hatala et al., 2017; Hovey, Delormier,
### Table 2. Critical Appraisal of Primary Studies Resulting From Two-Eyed Seeing Literature Review.

| Author Number of Participants | Clear Purpose Location | Appropriate Design for Qualitative Research | Appropriate for Recruitment Method Fitting | Data Collection Fitting Question | Relationship Between Researcher and Participants Considered | Ethics Considered | Rigor in Data Analysis | Clear Results | Valuable Results |
|-------------------------------|------------------------|-------------------------------------------|------------------------------------------|---------------------------------|--------------------------------------------------------|----------------|-------------------|----------------|-------------------|
| Cabrera et al. (2015) n = 48  | Impact of medicalization on First Nation group's knowledge and approaches to wellness in relation to early onset familial Alzheimer disease BC FN community | Yes, though methodology is not described Community-based research | No, secondary data analysis | Yes, Semistructured focus groups | Not described | Yes Complied with Nation's ethics protocol and University ethics board | Not described. | Yes Understanding of disease is medicalized/ Western, but approach is both Western and Indigenous | Yes Validates presence of both views for those who require this proof in order to value different perspectives of health and wellness |
| Carter et al. (2017) n = 3    | Exploring what living a balanced life means for urban-dwelling First Nation men Toronto, ON | Narrative methodology Indigenized Lieblich et al. approach | Yes Indigenous advisory group recruited | Yes Interviews, use of symbol-based reflection | Yes | Yes University ethics board. Indigenous advisory board | Lacks detail Member checking | Yes Strengths-based approach of contributing factors to living a balanced life | Yes Nurses should practice culturally safe care and may use symbols to elicit meaning from patients and help to better understand perspectives |
| Clark (2014) n = 14          | Needs assessment of Inuit in MB using electronic health records Manitoba | No specific design described | Not described | Yes Focus groups and interviews | No | n/a | Not described | Yes Three themes related to improving the accessibility of electronic personal health information for Inuit | Yes Shaping the electronic health record to the benefit of Inuit patients, respecting language and contributing to well-being |
| Hatala et al. (2017) n = 28   | Indigenous youth's constructions of time and future Saskatoon, Saskatchewan | Yes Modified grounded theory and Indigenous research methodology | Yes Purposeful and snowball sampling | Yes Semistructured interviews | Yes, Researcher and participants as co-constructing knowledge Researchers known to participants for years | Yes University REB and community ethics approval | Yes Analyzed by all authors, member checking with participant, advisory board | Yes Two over-arching themes with three subthemes each | Yes Culture as an important factor in mental health and addictions and suicide prevention in Indigenous youth |
| Marsh et al. (2016) n = 24    | Whether cultural adaptation of Seeking Safety model for substance use treatment for Indigenous people is appropriate and feasible Urban setting, northeastern Ontario | Yes Interpretive description | Yes Convenience sampling | Yes Questionnaires, semistructured interviews, and sharing circles | Yes As non-Indigenous researcher. Substantive attention to this | Yes University ethics board approval, healing and community ethics research with Indigenous people | Lacks detail. Member checking with participants and Elders | Yes Four themes relating to Medicine Wheel | Yes Reduction in symptoms, regaining custody of children, remain substance free Lacked control group, which could assist in determining whether traditional methods versus Seeking Safety model alone are effective therapies for substance use with Indigenous people |
| Martin et al. (2017) n = 15   | Experiences and impacts of flood displacement among members of Little Saskatchewan FN Manitoba | Yes Two-Eyed Seeing, participatory, critical ethnography | Yes Purposive sampling | Yes Interviews conducted by FN individual in local language | Yes | University and Community ethics approvals | Lacks detail. Data analyzed by research team and community advisory board | Yes Victims of flood displacement still feeling adrift and attempting to rebuild community | Yes Call to government to create better relationships with FN communities to provide equitable support to victims of flooding |

(continued)
**Table 2. (continued)**

**CASP Qualitative Checklist**

| Author | Number of Participants | Clear Purpose Location | Appropriate for Qualitative Research | Appropriate Design for Research Question | Recruitment Method Fitting | Data Collection Fitting Question | Relationship Between Researcher and Participants Considered | Ethics Considered | Rigor in Data Analysis | Clear Results | Valuable Results |
|--------|------------------------|------------------------|-------------------------------------|----------------------------------------|--------------------------|-------------------------------|-------------------------------------------------|----------------|---------------------|----------------|----------------|
| Rand (2016) n = 21 | Perceptions of Inuit women on STIs and HIV in their communities Nunavut | Yes | Community-based participatory research and Two-Eyed Seeing No design methodology described | Yes Community feast, information session, advertising, Purposive sampling | Yes Storytelling sessions | Yes Author is part member of community with long-term relationships within community | Yes Community advisory board oversaw entire research project University and community ethics approval | Yes | Lacks detail Participatory analysis with participant Inductive thematic analysis | Yes | Five major themes depicting experiences and perceptions of STIs/HIV including strategies for holistic support | Yes | One of few studies of this topic with Inuit communities. Results support future research and health programming strategies |
| Whiting et al. (2016) n = 8 | How Two-Eyed Seeing is viewed by interagency collaboration Regina, Saskatchewan | Yes | Interpretive description | Yes Purposeful, nonrandom, six members of team, two from joint initiative | Yes Semistructured interviews and observation | Briefly at end as limitation (known to participants and non-Indigenous) | Yes Although Two-Eyed Seeing not threaded throughout study design | Yes | Lacks detail. Member checking with participant and office director | Yes | Seven themes | Yes | Description of use of Two-Eyed Seeing in collaborative relationship/initiatives |
| Whitty-Rogers et al. (2016) n = 9 | To explore Mi'kmaq women's experiences with gestational diabetes Nova Scotia | Yes | Participatory Action Research and Two-Eyed Seeing Hermeneutic phenomenology | Yes Purposive and snowball sampling | Yes One-on-one conversations and talking circle | Yes Long-standing relationship with community | Yes University and Community Attention to relational ethics | Yes | Member checking with participants, all authors completed analysis | Yes | Four themes related to experiences of gestational diabetes | Yes | Nursing implications clear to ensure adequate education, relational support, and advocate for funding to minimize barriers to health care |

**CASP Cohort Study**

| Author | Study Design | Number of Participants | Clear and Focused Question Location | Acceptable Recruitment? | Exposure Accurately Measured? | Outcome Accurately Measured? | Considered Confounding Factors? | Adequate Follow Up? | Results Precise? Believable? | Applicable to Local Population? | Results Fit With Other Evidence? | Study Implications |
|--------|--------------|------------------------|-----------------------------------|------------------------|-----------------------------|-----------------------------|---------------------------|----------------|--------------------------|----------------|---------------------|----------------|
| Hunt et al. (2018) Single-group quasi-experiment Time-series design n = 41 | Determine baseline community knowledge of concussion injury and impact of intervention on knowledge Northern Ontario FN community | Yes | Posters and e-mails to hockey coaches | Previous exposure to concussion. Initial knowledge assessed via survey prior to intervention | Postintervention survey immediately and at 6 months | Yes—loss to f/u (individuals more likely to have experienced concussion) | Yes—six months might have also repeated at 1 year to see if knowledge retained | Six months, might have also been culturally appropriate. Validated with four youth (most participants adults) | High level of knowledge prior to intervention Intervention did not seem to influence knowledge retention Not powered to show statistical significance | Yes | Data from northern FN community in Ontario. Not necessarily applicable to other groups/ populations | Yes | Further research needed to determine whether workshop intervention is effective Further work to integrate Indigenous ways of knowing into concussion education and prevention is required |
| Study                  | Use of MMR Design Appropriate? | Effective Integration of Quantitative and Qualitative Components? | Overall Interpretation Adequate and Valuable? | Divergences and Inconsistencies Discussed? | Components of Study Adhere to Quality Criteria of Traditional Methods? |
|------------------------|--------------------------------|---------------------------------------------------------------|----------------------------------------------|--------------------------------------------|---------------------------------------------------------------|
| Manyaka-Pringle et al. (2017) | Yes                            | Using Bayesian models integrates qualitative and quantitative findings into a single probability for chosen indicator. | Yes Interpretations of data presented appear to be appropriate. Selection of indicators from qualitative data not thoroughly described. Authors conclude the study design is an effective way to bring Indigenous and mainstream decision makers together to manage socio-ecological systems. | Yes Indicators were identified which were correlated for the purpose of removing and reducing collinearity effects. All indicators that lacked sufficient data were removed. Traditional knowledge and scientific indicators were linked together using validated Bayesian model. | Qualitative ($n = 11$) data collected using interviews. No discussion of how analysis resulted in chosen indicators to include in model. No description of rigor in data analysis. Empirical data used where available. When empirical data were not available, expert knowledge was integrated with empirical data ($n = 16$ experts from four fields). Expert data were rigorously evaluated for uncertainty. Appropriate sensitivity was analyzed and confirmed following this. Bias control was attempted by explanation of overconfidence bias. Confounding influences were disregarded by experts (e.g., technological advances may confound true environmental changes). |

Note. FN = First Nation; MB = Manitoba; REB = Research Ethics Board; STIs = Sexually Transmitted Infections; f/u = Follow Up; MMR = Mixed Methods Research.
Finally, there are differences in the literature as to whether Two-Eyed Seeing is considered as an ethical protocol (Hall, 2015), a guiding principle (Hunt et al., 2018; Lemke & Delormier, 2017), or a framework (Cabrera et al., 2015; Chatwood et al., 2015; Martin et al., 2017; Peltier, 2018). Often these key terms are used interchangeably by the original and subsequent authors using Two-Eyed Seeing. Some suggest that Two-Eyed Seeing is much more than a set of prescriptive guidelines to ethical research with Indigenous people, in that it is a philosophy and a way of life that influences the entire research process from inception through to completion (Hall et al., 2015; Hovey et al., 2017). This perceived confusion likely stems from Two-Eyed Seeing being relatively new and the need for its further refinement in the literature. These authors contend that Two-Eyed Seeing is not best described as an ethical protocol as it does not merely describe a set of minimum standards for researchers to ensure ethical conduct. Similarly, Two-Eyed Seeing has evolved to provide more than a single principle with which to guide research protocols and procedures, and its constructs are not static or testable, and thus it is also not adequately described as a single guiding principle or as a theory. Instead, these authors refer to Two-Eyed Seeing as a framework because it provides a basic structure on which researchers and communities can build upon and expand to suit their unique needs (Merriam-Webster Dictionary, 2019). Its basic structure will likely continue to evolve in the literature as researchers reflect on its application with various communities and methodologies.

### Suggested Attributes of Those Engaging With Two-Eyed Seeing

1. **Knowledge and appreciation of spiritual wellness**
2. **Effective communication skills**
3. **Building trusting, equitable relationships**
4. **Patience in the process**
5. **Taking a strengths-based perspective**
6. **Honest with one another**
7. **Open to change**
8. **Engage in self-reflection on own perspectives, beliefs, and values**
9. **Acknowledge and value commonalities and differences in perspectives**

### Application of Two-Eyed Seeing in research

1. **Authentic relationships between researchers, community, and participants**
2. **Reciprocal—both researchers and participants benefit through research (promotion of healing and wellness, building relationships, learning from one another)**
3. **Relational accountability—researchers are responsible for the well-being of the research team, participants, and community by promoting healing and wellness (often through traditional teaching and ceremony)**
4. **Indigenous involvement—Elders, knowledge holders, and community members involved throughout research process (commonly in form of advisory council), actively involved in methods, local customs are respected and incorporated**
5. **Indigenous ways of knowing form foundation of research design (respect oral tradition, methods/methodologies in line with Indigenous ways of knowing, land-based, active and based on doing, member checking for rigor, incorporation of traditional teaching and ceremonies, promote healing and well-being)**
6. **Western researchers must be willing to take a back seat, be followers, listeners, and learners and defer to Indigenous leadership in the research process**
Indigenous and Western perspectives to apply Two-Eyed Seeing to their work independently. These authors suggest, however, that the collaboration of at least two researchers may be appropriate to add rigor to the research—as at least one can focus using an Indigenous lens, while another uses a Western lens (Morse, 2015). Since its development, authors have expanded on the required attributes of individuals who have chosen to use a Two-Eyed Seeing approach to guide their work, adding ideas not previously emphasized by the original developers, including requirements for knowledge, skills, and attitudes. First, researchers must have the knowledge and appreciation of spiritual wellness to truly engage with Indigenous perspectives (Rowan et al., 2015). Next, skills in effective communication and building trusting and equitable relationships are necessary to engage with others while using the Two-Eyed Seeing approach (Fornssler et al., 2018; Hatala et al., 2017; Kapyrka & Dockstator, 2012; Mantyka-Pringle et al., 2017; Marsh, Cote-Meek, Toulouse, Najavits, & Young, 2015; Marsh et al., 2016; Martin et al., 2017; Peltier, 2018; Vukic, Gregory, & Martin-Misener, 2012; Whitty-Rogers, Caine, & Cameron, 2016). Relational skills, such as patience, are also important as the process of engaging with multiple viewpoints is time-consuming and often does not adhere to formal funding agency guidelines (Hall et al., 2015). Additionally, those engaged in Two-Eyed Seeing must also have skills in strengths-based perspectives, to emphasize the resiliency of Indigenous people, promote Indigenous self-determination and governance, and not further perpetuate negative stereotypes (Carter et al., 2017; Marsh, Coholic, Cote-Meek, & Najavits, 2015; Martin et al., 2017). Finally, researchers must embody important attitudes to effectively apply Two-Eyed Seeing in research with Indigenous people. First, honesty is required between those with differing worldviews to support sharing perspectives and to resolve conflicts between opposing opinions (Fornssler et al., 2018). Next, researchers must be open to change, as embarking on initiatives using Two-Eyed Seeing is a largely new undertaking (Whiting et al., 2018). Lastly, individuals must be willing to engage in self-reflection, analyzing their own perspectives, beliefs, and values to fully appreciate commonalities and differences between the worldviews of all involved (Carter et al., 2017; Marsh, Coholic, et al., 2015; Martin, 2012; McKeon, 2012; Peltier, 2018; Stephens, 2000). These attributes are key to an effective and authentic application of Two-Eyed Seeing to research with Indigenous people.

Application of Two-Eyed Seeing in Research

The use of Two-Eyed Seeing in research varies from author to author based on different interpretations of the framework and a lack of consistency in the literature concerning its application procedures. While some authors describe their use of Two-Eyed Seeing as a rationale for their valuing different perspectives from those of Western viewpoints (Cabrera et al., 2015; Clark, 2014; Latimer et al., 2014; Mantyka-Pringle et al., 2017; Paraschak & Forsyth, 2010), others incorporate its ideals throughout the research process in varying ways. Six components of the impact of Two-Eyed Seeing on the research process can be gleaned from the work of researchers who interpret the application of Two-Eyed Seeing as more than just appreciating a differing perspective from the mainstream. These six components include (a) authentic relationships, (b) reciprocal research, (c) relational accountability, (d) Indigenous involvement, (e) Indigenous methodology, and (f) Western researchers deferring to Indigenous leadership. Not every component is enacted by all researchers or carried out in the same way, but collectively these six components encompass how Two-Eyed Seeing has been applied in research to date.

First, authentic relationships between researchers and the Indigenous community with whom research is being conducted, including relationships with participants, are valued and regarded as important to ethical research with Indigenous people (Hatala et al., 2017; Marsh, Cote-Meek, et al., 2015; Martin et al., 2017; Peltier, 2018; Rand, 2016; Whitty-Rogers et al., 2016). Research is reciprocal, meaning that not only do researchers benefit by gaining knowledge, answers to research questions, or acknowledgement for their work, but participants also benefit as healing and wellness is promoted throughout the research process by building relationships and learning from one another (Fornssler et al., 2018; Hall et al., 2015; Peltier, 2018; Whiting et al., 2018). Similarly, relational accountability is an expectation of researchers who, by engaging with Two-Eyed Seeing, assume responsibility for the health and well-being of the research team, community, and participants throughout the research process (Chambers et al., 2018; Hatala et al., 2017; Marsh, Cote-Meek, et al., 2015; Peltier, 2018). This is accomplished by involving Elders in the research process to integrate traditional teaching and ceremonies. The involvement of the Indigenous community in research processes is common throughout this literature, although the extent varies. Indigenous Elders, knowledge holders, and community members are most commonly involved in the research process by making up an Advisory council that oversees and directs the study as initially advocated by the founders of Two-Eyed Seeing (Bartlett et al., 2012; Carter et al., 2017; Hatala et al., 2017; Hovey et al., 2017; Marsh, Coholic, et al., 2015; Marsh, Cote-Meek, et al., 2015; Martin et al., 2017; Rand, 2016). In many cases, Elders or Indigenous researchers are also actively involved in various aspects of the research, including recruitment, data collection, data analysis, and knowledge translation, and may provide traditional teaching and ceremonies as a study procedure method and/or a knowledge communicator (Chatwood et al., 2015; Fornssler et al., 2018; Hall et al., 2015; Hatala et al., 2017; Hunt et al., 2018; Marsh, Cote-Meek, et al., 2015; Martin et al., 2017; Peltier, 2018; Rand, 2016; Rowan et al., 2015; Whiting et al., 2018; Whitty-Rogers et al., 2016). In this review, most researchers recognized and valued local Indigenous customs and traditions and sought guidance prior to initiating research with the Indigenous community. Research designs were commonly influenced by Indigenous ways of knowing through the selection of methods that respected oral tradition (such as storytelling; Fornssler et al., 2018; Hall et al., 2015; Peltier, 2018; Rand, 2016),
adapting Western methodologies for Indigenous ways of knowing (such as grounded theory; Hatala et al., 2017), engaging in member checking with participants to validate findings (Carter et al., 2017; Peltier, 2018; Whitny-Rogers et al., 2016), integrating land-based activities (Chatwood et al., 2015), and incorporating traditional teaching and ceremonies throughout the research process (Fornssler et al., 2018; Hall et al., 2015; Hatala et al., 2017; Marsh, Cote-Meek, et al., 2015; Peltier, 2018; Rowan et al., 2015; Whiting et al., 2018). Finally, some authors described the role of Western researchers in Two-Eyed Seeing to be that of follower, listener, and learner as the original developers also described. To complete research using Indigenous ways of knowing and methodologies, Western researchers must be willing to take a back seat and allow others with Indigenous knowledge and lived experience to lead the research process (Fornssler et al., 2018; Hall et al., 2015; Iwama et al., 2009; Rowan et al., 2015).

Discussion

This is the first integrative review to analyze and synthesize the interpretation and application of Two-Eyed Seeing in the literature. Such a review was necessary as discrepancies pertaining to Two-Eyed Seeing in the literature have led to researchers attempting to use the approach without clear application procedures. The findings of this integrative review offer a synthesis of key attributes and application procedures for consideration by researchers choosing to apply Two-Eyed Seeing to their work.

Two-Eyed Seeing is a unique approach to research in that its goals go beyond a respectful and collaborative approach advocated by other community-engaged research approaches (Kemmis & McTaggart, 2005; Mikesell, Bromley, & Khodyakov, 2013). In addition to these important components, Two-Eyed Seeing also necessitates a blending of both Indigenous and Western worldviews and perspectives throughout the research process (Bartlett et al., 2012). This integration was enacted in differing ways by researchers, such as the use of methods and methodologies that reflect Indigenous ways of knowing, and the inclusion of land-based activities, traditional teaching, and ceremonies. These differences reflect the varying degrees in which researchers interpret Two-Eyed Seeing and its application to research. Some researchers have used the approach to support the importance of eliciting Indigenous perspectives in their work, while others have fully integrated Western and Indigenous perspectives throughout the research process, from conceptualization of the research problem to dissemination of results. The key attributes of researchers engaging with Two-Eyed Seeing have been extracted from the literature, providing a list of necessary characteristics researchers should be willing and able to exemplify before undertaking work with Indigenous people. For example, researchers who are honest with themselves and others, have effective communication skills, value different perspectives, prioritize building relationships, and exercise patience are likely to have the attributes necessary to enable equitable and collaborative research with Indigenous people. Similarly, authentic relationships with Indigenous people necessitate reciprocity and accountability and should lead to equitable engagement and involvement of members of the Indigenous community throughout the research process. If researchers embody these attributes and engage in these application procedures, it is likely that their work will be congruent with decolonizing approaches to research and founded in Indigenous knowledges, methodologies, and ways of knowing (Kovach, 2009).

It is our opinion, along with many of the authors of research included in this report, that researchers applying Two-Eyed Seeing must do so in authentic and all-encompassing ways (Chatwood et al., 2015; Fornssler et al., 2018; Hall, 2015; Hatala et al., 2017; Hovey et al., 2017; Marsh et al., 2016; Martin et al., 2017; Rand, 2016). In fact, a simplistic application of Two-Eyed Seeing (e.g., as merely supporting rationale for the consideration of Indigenous perspectives) undermines the entire premise of the approach as egalitarian and collaborative. A respectful integration of both Indigenous and Western worldviews is required throughout the research process and not just at steps along the way. We recognize, however, that decisions concerning application procedures must be driven by an authentic, respectful, and collaborative relationship between Western and Indigenous researchers and community members.

Finally, this review demonstrates that a better understanding, interpretation, and application of Two-Eyed Seeing in the literature is required in order to assist other researchers wishing to use this approach. The collection of attributes and application procedures described in this integrative review provide researchers with a representation of how Two-Eyed Seeing has been used in health research with Indigenous people to date. This in turn will support researchers and Indigenous communities to more carefully consider what the Two-Eyed Seeing framework means to them and how they can best apply it to their work. In future, researchers should strive to thoroughly describe their approach and decisions related to the application of Two-Eyed Seeing to research with Indigenous people. A critical discussion of the application procedures used by researchers applying Two-Eyed Seeing will assist other researchers and Indigenous communities while bringing clarity and a deeper understanding of the framework to the literature.

Strengths and Limitations

The literature included in this integrative review represents what is currently available within mainstream databases where some Indigenous journals are not indexed and did not include unpublished PhD dissertations. As such, some literature using Two-Eyed Seeing may not have been included in this review. As well, all but two of the primary studies included in this review used qualitative methodology, which may have limited authors’ abilities to adequately report details pertaining to methodology due to publication restrictions. To mitigate this limitation in future, researchers could consider publishing an additional methods article that thoroughly describes their interpretation and application of Two-Eyed Seeing.
Conclusions
A thorough review of the literature was undertaken to better understand how Two-Eyed Seeing is interpreted and applied in research. The results demonstrate both commonalities and differences in the interpretation and application of Two-Eyed Seeing. Data synthesis reflects the defining characteristics of Two-Eyed Seeing and identifies the suggested attributes of researchers engaging in Two-Eyed Seeing and the ways Two-Eyed Seeing has been applied to research to date. The results are useful to researchers wishing to engage with Two-Eyed Seeing and to more thoughtfully consider its characteristics and application to research. Researchers engaging with Two-Eyed Seeing should aim to clearly reflect on and describe their application of the framework in their publications. Going forward, researchers should strive toward a thorough integration of Two-Eyed Seeing in their work and suggest ethical standards for its application. These critical interpretations are necessary if Two-Eyed Seeing is to be more meaningfully applied and continue to inform future research with Indigenous peoples.

Declaration of Conflicting Interests
The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: The first author has received personal fees from Mallinckrodt Pharmaceuticals for consulting and reimbursement of travel fees to attend a conference. All other authors have no conflicts of interest to disclose.

Funding
The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The first author has received funding for this research from the Canadian Institutes of Health Research (CIHR) Fellowship, Priority Announcement: Research in First Nations, Metis and/or Inuit Health. FRN 146613.

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