

Reclaiming educational autonomy and minimizing measurement disjuncture through a culturally
specific assessment development process

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Background

For generations, Indigenous peoples have utilized performance-based assessment practices to determine how individuals could best contribute to the society (Bordeaux, 1995). Adults observed children exhibiting varying degrees of skill in tasks such as “hunting, running, consensus building, healing, and spiritual leadership” and those who demonstrated superior performance were the ones who later led hunting parties, provided spiritual guidance, served as orators for the people, and performed other necessary tasks for the group. To this day, observation, assessment, and feedback practices remain present within Indigenous communities and are used by parents, elders, teachers, master craftspeople, and ceremonial leaders. These practices can play a critical role in language revitalization efforts.

Modern language revitalization efforts within North America arose from the voice of Indigenous people seeking to preserve their languages, cultures, and ways of life. With support from academic scholars concerned about the loss of Indigenous languages (Krauss, 1992), revitalization efforts have become broad and expansive (Reyhner & Lockard, 2009). These efforts revolve around the teaching and learning of these endangered languages and seek to address the continued consequences of colonization, the effects of the residential school system, and other inequities of history.

Anishinaabemowin, an Algonquian language, is spoken widely throughout Canada by approximately 20,000 Anishinaabe people (Statistics Canada, 2017). In Canada, Anishinaabemowin communities are found in southwestern Quebec, Ontario, southern Manitoba and parts of southern Saskatchewan. In the United States, Anishinaabemowin communities exist along the northern border from Montana to Michigan and as far south as Oklahoma (see Figure 1

below). Considered “endangered” in the United States, there are an estimated seven hundred speakers of Anishinaabemowin across the United States (Hermes, Bang, & Marin, 2012).



Figure 1. Location of all Anishinaabe Reservations/Reserves in North America, with diffusion rings about communities speaking an Anishinaabe language. Cities with Anishinaabe population also shown (Lippert, 2007).

This research supports an Anishinaabemowin language assessment initiative sponsored by Kenjgewin Teg, an educational institution located in M’Chigeeng on Mnidoo Mnising (Manitoulin Island), Ontario, Canada. Kenjgewin Teg is governed by the United Chiefs and Councils of Mnidoo Mnising who represent eight First Nations: Sagamok Anishinawbek First Nation, Sheguiandah First Nation, Aundeck Omni Kaning First Nation, M’Chigeeng First Nation, Zhiibaahaasing First Nation, Sheshegwaning First Nation, Whitefish River First Nation, the Mamawmatawa Holistic Education Centre, and the Constance Lake First Nation. On October 14, 2011, these eight First Nations established the Anishinabek Language Declaration that asserted their right to: “revitalize, use, develop and transmit to future generations their histories, languages, oral traditions, philosophies, writing systems and literatures, and to designate and

retain their own names for communities, places and persons.” Included within the Anishinaabek Language Declaration was the expectation that employees of Kenjgewin Teg will “provide all work and service functions in their ancestral language by 2030” (United Chiefs and Councils of Mnídoo Mníising, 2011). The eight First Nations sought the design and development an Anishinaabemowin language assessment that could be used to support the Kenjgewin Teg in meeting this long-term goal. The Kantaa-Anishinaabemi language assessment was created in 2014 to determine Kenjgewin Teg employees’ proficiency in Anishinaabemowin. It was based on the Common European Framework of Reference for Languages (2001) and the 2012 proficiency guidelines established by the American Council on the Teaching of Foreign Languages (2012).

In December 2017, Kenjgewin Teg contracted with the author to update the assessment to align more with Anishinaabek principles of learning and overall worldview. The revised assessment, known as the Dibishgaademgak Anishinaabemowin (measuring Anishinaabemowin) is expected to address language learning domains that are deemed critical for Anishinaabemowin language learning and provide a better understanding of the performance of language learners than that obtained through the existing language assessment.

Purpose of the study

As with any other product of human activity, tests are cultural artifacts (Solano-Flores, 2011, p. 3) existing within a given worldview. Beyond that, the elements of the instrument development process are prescribed by the cultural worldview under which they are presented. The cultural validity of tests is the degree to which they address sociocultural influences such as values, beliefs, experiences and epistemologies inherent within cultures as well as the socioeconomic conditions under which cultural groups exist (Solano-Flores & Nelson-Barber,

2001). Assessment instruments are influenced by the worldview within which these structural influences and conditions reside. Whether examined from a broad or narrow perspective, such elements exist within a worldview that guides and influences the construction of educational assessment instruments. From a closer perspective, educational instrument developers seek a formal structure that maintains internal alignment both within and between the conceptual and the operational elements of an instrument development process. The conceptual-operational elements of the construct-framework, dimensions-components, elements-items, and stages-levels components and their respective alignment orientations are represented in the figure below.

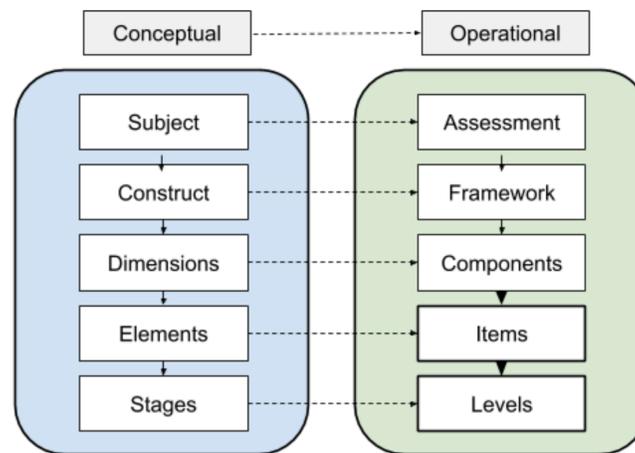


Figure 2. Alignment within and between the conceptual and operational elements of an instrument development process.

From a broad perspective, educational assessment developers seek a formal structure that maintains external alignment to such educational setting elements as the constructs of knowledge, learning expectations, the educational framework, adopted curriculum, methods of instruction, and forms of assessment. An issue of validity arises when assessment instruments are developed within one worldview and applied inside of another. This issue is exacerbated when

assessment instruments are developed within Western worldviews and applied within an Indigenous world view. This is summarized in the figure below.

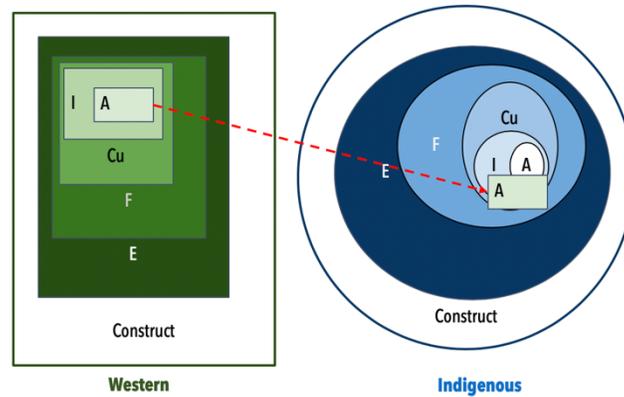


Figure 3. Assessment applied across Western and Indigenous worldviews.

Proposed research project

The current study will focus on an instrument development process that maintains internal and external alignment by being grounded within a specific worldview. It approaches measurement from a stages- and performance-based perspective that aspires to align with Indigenous notions of the transmission of knowledge. The purpose of this study is to determine whether and to what degree the proposed assessment development process can produce an Anishinaabemowin assessment that will provide a better understanding of the performance level of Anishinaabemowin learners than that provided through the existing Kantaa-Anishinaabemi assessment.

Theoretical framework

An instrument development process is comprised of an array of structural components and is advanced through thoughtful consideration and decision-making. In the case where

assessment instruments are developed within Western worldviews and applied within an Indigenous world view, since each element, consideration, and decision are influenced by the worldview in which it exists, a multitude of opportunities exist for misalignment between the two worldviews. This led to the posing of three fundamental questions about this form of misalignment that exists within instrument development processes: *What do we call this? Why is this a problem? What do we do about it?* This paper is offered in response to these three questions.

What do we call this?

Measurement validity refers to the degree to which evidence and theory support the interpretations of test scores for proposed uses of tests (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 2014). Key elements of this definition are addressed by the terms “evidence,” “theory,” “interpretations,” “scores,” “uses,” and “tests.” The meaning of these terms within the very definition of measurement validity is grounded in and influenced by the worldview under which the instrument development occurs.

Misalignment that is grounded in cultural and linguistic differences has been referred to as “disjuncture” (Appadurai, 1996; Meek, 2010; Wyman, et al., 2010) or “discontinuity” (Brown-Jeffy & Cooper, 2011; Bougie, Wright, and Taylor, 2003; Edwards, 2006; Meek, 2007). Cultural discontinuity in school settings has been defined conceptually as “a school-based behavioral process where the cultural value-based learning preferences and practices of many ethnic minority students—those typically originating from home or parental socialization activities—are discontinued at school” (Tyler et al., 2008). The cultural discontinuity hypothesis posits that culturally based differences in the communication styles of minority students’ home

and the Anglo culture of the school lead to conflicts, misunderstandings, and, ultimately, failure for those students (Ledlow, 1992). Cultural discontinuity arises for students when their personal values clash with the ideals that shape their school system (Wiesner, 2006). Ladson-Billings (1995) described the “discontinuity” problem as the gap between what students experience at home and what they experience at school with respect to their interactions of speech and language with teachers.

Measurement disjuncture is defined here as the misalignment that occurs when elements of an instrument development process from one worldview are applied to the instrument development process of another worldview. While measurement disjunctures can occur across worldviews, environments or settings, this research will center on the measurement disjuncture that exists across Western and Indigenous worldviews.

Why is this a problem?

When assessment instruments are developed within a Western worldview and are applied within an Indigenous setting, measurement disjuncture results. Measurement disjuncture affects the establishment of measurement validity and hence, the inferences made based on the scores derived from such assessments. This is primarily due to the introduction of measurement error caused by the misalignment. Measurement error introduced by measurement disjuncture negatively affects the conclusions drawn from quantitative research designs. The figure below presents a typical analysis of variance (ANOVA) table used to interpret the differences between groups in a controlled quantitative study. Three elements of the table that are influenced by measurement disjuncture are noted. In reference to the figure below, when the error term (a) increases, the mean square error (b) increases causing the value of the F statistic (c) to decrease.

With a smaller than expected F statistic, researchers are less likely to acknowledge that the treatment has had an impact when, in fact, it has. This represents a Type II error.

SOURCE	df	SS	MS	F
Factor A (between)	$k-1$	$\sum_{i=1}^n n_i(\bar{x}_i - \bar{x})^2$	$MSA = \frac{SSA}{df_A} = \frac{SSA}{k-1}$	$F = \frac{MSA}{MSE}$
Error (within)	$n-k$	$\sum_{i=1}^n (n_i - 1)s_i^2$	$MSE = \frac{SSE}{df_e} = \frac{SSE}{n-k}$	
Total	$n-1$			

Figure 4. The impact of measurement disjuncture on the interpretation of quantitative research design conclusions.

When measurement disjuncture exists within assessment instruments used by educational researchers, the influence of interventions may end up being undervalued. In practical terms, researchers evaluating programs to improve educational outcomes for Indigenous people through the application of assessment instruments developed within a Western worldview may end up undervaluing the influence of such programs.

What do we do about it?

While the term *measurement disjuncture* is presented here, attempts to both describe and address the disjuncture within broader educational environments are not new. Au and Jordan described as “culturally appropriate” the incorporation of “talk story” into a program of reading instruction for Native Hawaiian students that improved upon expected scores on standardized reading tests (Au & Jordan, 1981). Mohatt and Erickson (Mohatt & Erickson, 1981) used the term “culturally congruent” to describe teachers’ use of interaction patterns that simulated Native American students’ home cultural patterns to produce improved academic performance. Jordan

(1985) defined educational practices as “culturally compatible” when the culture of students is used as a guide in choosing aspects of the educational program to maximize academically desired behaviors and minimize undesired behaviors. Researchers beginning in the 1980s used the term “culturally responsive education” to describe the language interactions of teachers with linguistically diverse and Native American students (Cazden & Leggett, 1981; Erickson & Mohatt, 1982). Erickson and Mohatt (1982) suggested their notion of culturally responsive teaching could be seen as a beginning step for bridging the gap between home and school. Ladson-Billings (1995) claimed the term culturally responsive represented a more expansive, dynamic, and synergistic relationship between the culture of the school and that of the home and greater community.

Ladson-Billings (1995) conducted a significant qualitative study on the teaching methods of teachers who demonstrated consistent academic success with African American students. Her work launched the movement towards the acknowledgement and identification of a “culturally relevant pedagogy.” Ladson-Billings (1995), grounded in Black feminist thought, introduced the theory of “culturally relevant pedagogy” to emphasize the significance of teaching to and through the cultural strengths of ethnically diverse students. Ladson-Billings and Jordan argued for the use of culturally relevant pedagogy to engage actively and motivate students from ethnically diverse backgrounds to improve their academic achievement (Jordan, 1985; Ladson-Billings, 1995). Ladson-Billings (1995) established three criteria for a culturally relevant pedagogy that could be used to address the “discontinuity” problem: (a) an ability to develop students academically; (b) a willingness to nurture and support cultural competence to help students to maintain their cultural integrity while succeeding academically; and (c) the development of a sociopolitical or critical consciousness. In a culturally relevant classroom, a

child's culture is not only acknowledged but seen as a source of strength that can be utilized to attain academic success. Sociopolitical consciousness has been described as an individual's ability to critically analyze the political, economic, and social forces shaping society and one's status in it (Seider et al., 2018). For the last definitional criterion, Ladson-Billings (1995) borrowed from Freire and acknowledged that students must develop a broader sociopolitical consciousness and the skills to critique the cultural norms, values, mores, and institutions that produce and maintain social inequities (Freire, 1970). The development of a sociopolitical or critical consciousness within students allows them to acknowledge and act on historical circumstances that affect their current reality (Freire, 1970; Ladson-Billings, 1995).

Researchers in the field of program evaluation began to utilize the term "responsive evaluation" in the early 1970s in reference to a focus on issues of practical importance to program managers and developers (Stake, 2011). Stake (1973) sought to remove the emphasis on static program objectives developed by those furthest from the delivery of program services and stressed the importance of being responsive to situational realities in the management of programs and to the reactions, concerns, and issues of participants. This represented a dramatic departure from the emphasis on the use of evaluation plans that relied on preconceived notions of program expectations. Stake (1973) believed that the ultimate test of the validity of an evaluation is the extent to which it increases the audience's understanding of the program. Stake's (1973) work led to the stream of responsive evaluation research and practices that exist today.

Drawing upon the lineage of research in responsive evaluation and culturally relevant pedagogy, Hood (1998) argued that student learning is more effectively assessed through the use of assessment approaches that are culturally responsive. Combining the ideas of Ladson-Billings (1995) and Stake (1973), Hood (1998) promoted the development of "culturally responsive"

performance-based assessments as a means of achieving equity for students of color. Hood (1998) noted that there were to be challenges and difficulties in the development of both performance tasks and scoring criteria that would be “responsive to cultural differences and adequately assess the content-related skills that are the focus of the assessment.”

“Culturally specific assessment” defined herein, represents an extension of Hood’s (1998) culturally responsive assessment onto a named worldview through the addition of an additional criterion: the assessment development process functions within a system of knowledge that exists within a named worldview. Thus, the formal definition of culturally specific assessment that will be utilized throughout this document is (a) assessment that supports the academic development of students; (b) is inclusive of a willingness to nurture and support cultural competence; (c) aims to support the development of a sociopolitical or critical consciousness within students; (d) is focused on constructs and measures of importance to educational practitioners and other key stakeholders; and (e) functions within a system of knowledge that exists within a named worldview. The table below summarizes the progression of the terminologies towards this definition of culturally specific assessment.

Table 1. Progression of terminologies towards culturally specific assessment.

<u>Culturally</u>	<u>Description</u>	<u>Proponents</u>
Responsive evaluation	Evaluation focuses is on issues of practical importance to program managers and developers	(Stake, 1973)
Culturally appropriate instruction	Early attempt to describe efforts to address the discontinuity problem	(Au & Jordan, 1981)
Culturally congruent instruction	Teachers’ use of interaction patterns that simulated the Native American students’ home cultural patterns	(Mohatt & Erickson, 1981)
Culturally responsive education	Involves language interactions of teachers with linguistically diverse students	(Cazden & Leggett, 1981; Jordan, 1985; Mohatt & Erickson, 1981)

<u>Culturally</u>	<u>Description</u>	<u>Proponents</u>
Culturally compatible instruction	Culture of students is used as a guide in choosing aspects of the educational program	(Vogt, Jordan, & Tharp, 1987)
Culturally relevant pedagogy	(1) an ability to develop students academically; (2) a willingness to nurture and support cultural competence; and (3) the development of a sociopolitical or critical consciousness.	(Ladson-Billings, 1995)
Culturally responsive assessment	Supports the academic development of students; inclusive of a willingness to nurture and support cultural competence; aims to support the development of a sociopolitical or critical consciousness; Focused on constructs and measures of importance to educational practitioners and other key stakeholders	(Hood, 1998)
Culturally specific assessment	Supports the academic development of students; Inclusive of a willingness to nurture and support cultural competence; Aims to support the development of a sociopolitical or critical consciousness; Focused on constructs and measures of importance to educational practitioners and other key stakeholders; Functions within a system of knowledge that exists within a named worldview	Sul (n.d.)

Throughout the transition of terminologies from culturally appropriate instruction to culturally responsive assessment, researchers have focused their attention on the improvement of academic performance of learners within educational settings or environments that are grounded in the worldview of the dominant culture. The transition toward culturally specific assessment described here represents an attempt to do the same within the worldview of cultures functioning within a named worldview.

Having arrived at a formal definition of culturally specific assessment, it is offered here as a potential solution to the problem of measurement disjuncture. In order to determine whether the minimization of measurement disjuncture can be achieved through the employment of culturally specific assessments, educational environments that meet the criteria for culturally

specific assessment are sought. Such environments do exist. Indigenous knowledge, inclusive of both language and cultural knowledge and wisdom, are being promoted throughout Aotearoa (New Zealand), Hawai‘i, tribal communities within North America, and First Nations communities within Canada.

Significance

Through this research, (a) a critical assessment-development process is sought (b) that will support educational efforts of Indigenous people while (c) minimizing measurement disjuncture thus (d) increasing the measurement validity of the resultant assessment scores.

The proposed assessment-development approach presents a radical departure from most other instrument development processes. For example, many assessment developers rely on factor analytic models to arrive at item classifications. The proposed process re-orientes the instrument development process towards one in which Indigenous stakeholders define domains of knowledge and identify stages of learning within these domains. The elements of the instrument development process are based on Indigenous stakeholders' experiences and beliefs about their own language, culture and knowledge systems.

Pending review of the literature

Language revitalization has been described as the set of actions that lead to the increase of the numbers of speakers and domains of language use. This includes the actions of reversing language shift (Fishman, 1991). Although a great amount of research on Indigenous language revitalization exists, there is a limited research on the development of curricula, instructional practices, and, in particular, assessments that operate from within an Indigenous cultural worldview. Fifteen studies that focus on assessments developed in support of language

revitalization efforts have been identified. Each will be examined during the next stage of research, the review of the literature. The degree to which each of the assessments described adhere to the definitional components of culturally specific assessments described above will be the focus of the review.

Table 2. Prior research conducted on Indigenous language assessments

<u>Language assessment</u>	<u>Author(s)</u>
1. Onön:dowaga: (Seneca)	(Borgia, 2009)
2. Nsyilxcn and Interior Salish	(Johnson, 2017)
3. Inuktitut and English Language Screening Tool	(Dench, Cleave, Tagak, & Beddard, 2011)
4. ANA ‘ŌLELO Hawaiian language	(Kahakalau, 2017)
5. American Indian Montana	(Dupuis & Abrams, 2017)
6. Mohawk, New York State	(Steele, 1978)
7. Navajo Nation	(McGroarty, Beck, & Butler, 1995)
8. Keresan communities, New Mexico	(Westby, Moore, & Roman, 2002)
9. Hawaiian Oral Language Assessment (H-OLA)	(Housman, Dameg, Kobashigawa, & Brown, 2011)
10. Kaiapuni Assessment of Educational Outcomes (KĀ’EO)	(pending, n.d.)
11. Kaiaka Reo Māori Language Proficiency in Writing	(Edmonds, 2008)
12. Cherokee Preschool Immersion Language Assessment	(Peter & Hirata-Edds, 2006)
13. Cree Language Assessment	(Learning and Teaching Resources Branch Alberta Education, 2008)
14. Pathways to Creating Speakers of Onkwehonneha at Six Nations	(Green, 2017)
15. Assessing student proficiency in the Mohawk language: “The Kanien’kéha proficiency assessment”	(Montour, 2012)

Pending research questions

The current study will focus on an instrument development process that is grounded within an Anishinaabek worldview. As such, a meta-analytic approach is applied in the construction of the research questions that surround the proposed instrument development process. The object of the research is not the individuals learning Anishinaabemowin. Rather, the research will focus on the development of the Dibishgaademgak Anishinaabemowin, the assessment instrument that will be the result of the proposed instrument development process. For this reason, the pending research questions will revolve around (a) whether and to what degree the Dibishgaademgak Anishinaabemowin assessment can be classified as culturally specific; and (b) whether and to what degree the impact on measurement disjuncture is minimized through the use of the Dibishgaademgak Anishinaabemowin assessment.

Culture loading refers to the degree to which a test is culturally specific (Hitchcock et al., 2005; Reynolds & Ramsay, 2003). As the degree of culture loading within an instrument increases, the elements of the assessment development process will carry enhanced meaning for the target population. This also increases the degree of cultural bias when the instrument is administered to people from other cultures. Cultural loading can be viewed along a continuum, where an instrument may narrowly apply to a specific population (high cultural loading) or, on the other end, may only generally touch upon specific cultural concerns. The degree of cultural loading within an instrument development process will be approximated based on the degree to which the assessments adhere to the five criteria described above.

The minimization of measurement disjuncture will be examined through qualitative interviews with the developers and users of both the Kantaa-Anishinaabemi and

Dibishgaademgak Anishinaabemowin assessments. Interviews will focus on the perceived validity of the assessments and will center on questions such as: *Are the domains of Anishinaabemowin learning being addressed and represented properly within the assessment? Are the performance tasks aligned to the principles of Anishinaabemowin learning? Are the performance task rating levels aligned to the principles of Anishinaabemowin learning?*

Conclusion

As with other educational assessments, the Dibishgaademgak Anishinaabemowin exists within a self-determined worldview. The proposed culturally specific instrument development process is not a significant directional shift. Rather, the *group* identifying the system of knowledge and naming the worldview is the significant directional shift. This research will continue with a formal description and validation of the methodology used to develop the Dibishgaademgak Anishinaabemowin. A long-term research agenda will focus on defining, validating, and utilizing a culturally specific assessment-development process in support of educational efforts of Indigenous people while minimizing measurement disjuncture thereby increasing the measurement validity of the resultant assessment scores. To support this broader agenda, outreach efforts to Indigenous communities seeking to develop culturally specific assessments are being conducted.

The developers of the Dibishgaademgak Anishinaabemowin aspire to approach measurement from a stages- and performance-based perspective that aligns well with Anishinaabek notions of knowledge attainment. The clear articulation of the domains and stages of learning from an Anishinaabek worldview will be by master speakers and teachers of Anishinaabemowin. The following represent formal declarations of educational and assessment

autonomy that will ground the continued development of the Dibishgaademgak Anishinaabemowin.

We assert the right to educate ourselves within our own worldview.

This is the declaration of our educational autonomy.

We assert the right to develop assessments within our own worldview.

This is the declaration of our assessment autonomy.

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