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Development of a Cultural Connectedness Scale for First Nations Youth

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Despite a growing recognition of cultural connectedness as an important protective factor for First Nations (FN) peoples' health, there remains a clear need for a conceptual model that organizes, explains, and leads to an understanding of the resiliency mechanisms underlying this concept for FN youth. The current study involved the development of the Cultural Connectedness Scale (CCS) to identify a new scale of cultural connectedness. A sample of 319 FN, Métis, and Inuit youths enrolled in Grades 8–12 from reserve and urban areas in Saskatchewan and Southwestern Ontario, Canada, participated in the current study. A combination of rational expert judgments and empirical data were used to refine the pool of items to a set that is a representative sample of the indicators of the cultural connectedness construct. Exploratory factor analysis (EFA) was used to examine the latent structure of the cultural connectedness items, and a confirmatory factor analysis was used to test the fit of a more parsimonious version of the final EFA model. The resulting 29-item inventory consisted of 3 dimensions: identity, traditions, and spirituality. Criterion validity was demonstrated with cultural connectedness dimensions correlating well with other youth well-being indicators. The conceptualization and operationalization of the cultural connectedness has a number of potential applications both for research and prevention. This study provides an orienting framework that guides measurement of cultural connectedness that researchers need to further explore the role of culture in enhancing resiliency and well-being among FN youth in Canada.

Keywords: First Nations, youth, culture, resilience, assessment

This article describes the creation of a new scale of cultural connectedness to link to health outcomes for First Nations (FN) youth. We use the term *cultural connectedness* to refer to the extent to which a FN youth is integrated within his or her FN culture. We use the term *FN* throughout the article to reflect our Canadian context, but we have also adopted the terms used by the authors of the studies described to avoid masking any differences that may exist between study samples. Our development of the Cultural Connectedness Scale (CCS) is an example of identifying a culturally specific protective factor within the epistemology of FN culture that can be measured and verified. We support the premise that scientific measurement tools should use strengths-based approaches that enable FN people to heal by undertaking research with methods that are culturally appropriate that works toward decolonizing agendas.

We begin by reviewing the historical and social realities facing FN youth to contextualize and frame our main study objective: the development of a cultural connectedness scale for FN youth to aid in the prediction of positive health outcomes. We rely heavily on American findings due to the absence of previous cultural connectedness studies within a Canadian context. We then address our scale development objectives, which include an analysis of the underlying structure of cultural connectedness as measured by the CCS, examination of the item pool characteristics to assess how each item functions, and assessment of the criterion validity of the scale using measures of positive mental health. In conclusion, we discuss the utility of the scale in terms of potential contributions to the field of cross-cultural psychology and program evaluation. Last, we strongly encourage researchers to begin to incorporate cultural connectedness into their models of FN peoples' health.

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Social and Historical Context of FN Youth in Canada

FN youth in many communities throughout Canada continue to experience higher risk of mental health problems than their non-FN counterparts (First Nations Information Governance Centre, 2012). These disproportionate risks have arisen within the context of an extensive history of aversive treatment of FN peoples, born of political policies aimed at suppression, oppression, and marginalization of FN cultures (Kirmayer, Tait, & Simpson, 2009). Accordingly, the role of culture for the mental health and well-being of FN youth, their families, and their communities has received considerable attention in the literature (Mental Health Commission of Canada, 2009; Mussel, Cardiff, & White, 2004; Royal Commission on Aboriginal Peoples, 1996). In many communities, high rates of a variety of mental health problems have been identified among FN, Native American, and American Indian youth, including but not limited to depression and low self-esteem (P. B. Jackson & Lassiter, 2001; Twenge & Crocker, 2002), suicide and suicide-related behaviors (Alcántara & Gone, 2007; Chandler & LaLonde, 1998; Kirmayer, 1994; LaFromboise, Medoff, Lee, & Harris, 2007), antisocial behavior and panic disorder (Stiffman, Alexander-Eitzman, Silmere, Osborne, & Brown, 2007), and substance abuse and conduct disorders (Hawkins, Cummins, & Marlatt, 2004; Whitbeck, Yu, Johnson, Hoyt, & Walls, 2008). Some of the poor mental health concerns experienced by many FN youth may be further exacerbated by difficulties associated with ongoing forms of systemic acculturation (i.e., the extent to which individuals are influenced, assimilated, or adopted into cultures other than their own), leading to diminished mental health outcomes (LaFromboise, Albright, & Harris, 2010).

While research on the impact of colonization and acculturation has made some inroads in the area of cross-cultural psychology, much of this research has been driven by a deficit-based model. Repeated research findings of youth achieving better-than-expected outcomes have inspired the systematic study of resilience as a distinct domain of empirical and theoretical inquiry in psychology, especially developmental psychopathology (Yates & Masten, 2004). One of the most commonly used definitions of resilience is "positive adaptation despite adversity," with most researchers considering the presence of some demonstrable substantial risk to be essential (Fleming & Ledogar, 2008). Many universal protective factors have been identified in light of these risks, such as healthy connections to self, peer, family, school, religion, and community networks (Bernard, 1992; Karcher, 2011). However, there has been little attention to the applicability of existing resilience models to culturally diverse youth (e.g., Ungar, 2008), and even less consideration has been given to culturally specific protective factors (e.g., Graham, 2001), especially those using culturally validated measures.

There has, however, been emerging conceptual development as to what would comprise resilience in a FN context (LaFromboise et al., 2010). The contributions of these authors suggest the importance of community, family, and cultural values as each being a critical element in the resilience and well-being of Native American youth (LaFromboise, Hoyt, Oliver, & Whitbeck, 2006). Resilience frameworks have particular appeal to FN peoples because they are often congruent with a holistic view of well-being. Some FN authors prefer to see resilience as "a natural, human capacity to navigate life well" (Fleming & Ledogar, 2008, p. 49). From this perspective, a strengths-based approach to FN youth mental health and well-being is both welcomed and needed; it shifts the perceived deficits away from the individual and places mental health problems into the appropriate context (e.g., residential schools), allowing one to focus on the strength and resilience that many of these youth have demonstrated in the face of remnant colonialization. Although factors related to culture (e.g., historical loss, perceived discrimination) may result in psychological distress (Whitbeck, McMorris, Hoyt, Stubben, & LaFromboise, 2002), aspects of FN culture appear to serve as protective in light of the risks.

The concept of cultural connectedness, or the degree to which one is integrated within his or her culture, fits with a transformation in thinking from a deficit-based approach to one of resiliency and strength. Strengths- and culture-based approaches are particularly important in FN contexts because they enable FN people to reclaim and reaffirm FN ways of knowing and being. Cultural connectedness has been shown to protect against the mental health symptoms and risks associated with historical loss and perceived discrimination by directly counteracting its negative impact on Native American youth (Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001); it has been associated with prosocial behaviors (Whitbeck, Hoyt, Stubben, & LaFromboise, 2001) and connectedness to and engagement in family, school, and community among FN youth (Crooks, Chiodo, Thomas, & Hughes, 2010; Resnick et al., 1997; Sale, Sambrano, Springer, & Turner, 2003). While FN youth often possess cross-cultural protective factors, cultural connectedness may provide a unique means of protection against distinct communal challenges, both as mechanisms of coping (Walters, Simoni, & Evans-Campbell, 2002) and by strengthening universal youth protective factors, such as healthy family, school, and community networks (Bernard, 1992).

Resilience Models for FN Youth

Despite recent efforts to identify and verify culture-based resilience models for FN youth, little research has included the concept of cultural connectedness in order to elucidate its link with positive mental health outcomes. Mohatt, Fok, Burket, Henry, and Allen (2011) describe the development of the Awareness of Connectedness Scale (ACS), a culturally sensitive measure of Alaskan Native youth connection to self, family, community, and the natural environment. Their four-factor awareness of connectedness model yielded positive associations with experiences of purpose and meaning in youth's life, mastery with a communal focus (i.e., problem solving through assistance with family and peers, as opposed to on one's own), and cultural identification, and provides an important foundation for future strengths-based work in the area of FN youth resilience. However, the need to identify and integrate the concept of cultural connectedness, as a missing piece of existing models, remains.

Although a general consensus exists among researchers regarding the importance of the culture for Native American and American Indian peoples' mental health and well-being, the empirical examination of the relationships among cultural connectedness and mental health indicators has yielded mixed results (Fleming & Ledogar, 2008), raising significant concerns regarding its conceptualization and measurement. The confusion surrounding the effects of cultural connectedness can be attributed to researchers' lack of congruence regarding the theoretical framing of the con-

struct. Furthermore, the cultural connectedness studies have been conducted exclusively in an American context, specifically the Upper Midwest United States. Researchers have often resorted to developing operational models of cultural connectedness based on belief rather than a tested theoretical framework. Consequently, much of the ambiguity surrounding the effects of cultural connectedness can be attributed to researchers' use of a single dimension of the complex construct or changing and removing proposed dimensions.

Although researchers have typically used the term *enculturation* to describe this concept, our research team has moved to the term cultural connectedness based on feedback from our FN partners. Specifically, it was noted that the term enculturation was easily confused with *acculturation* and was not easily accessible to community partners. Conversely, the term cultural connectedness is more self-evident and seen to be more culturally appropriate.

Efforts to Operationalize Cultural Connectedness

The early work by Zimmerman, Ramirez-Valles, Washienko, Walter, and Dyer (1996, 1998) provided the foundation for a body of literature concerning the measurement of cultural connectedness that was built on strengths rather than deficits. Prior to the work of Zimmerman et al., connection to culture was typically measured by the extent of one's acculturation, the process by which a Native American person is assimilated into the majority or dominant Western culture (Waldram, 2004). The different degrees of cultural orientation was hypothesized to range from native-oriented to fully acculturated, until Oetting and Beauvais (1990–1991) found that enculturation was not related to acculturation using their Orthogonal Cultural Identification Scale, which taps elements of identity with Native American culture and the dominant Western culture. As such, Zimmerman et al. (1996) used the term enculturation in a Native American context to distinguish it from acculturation. Zimmerman et al. (1996) established and tested a single factor structure of enculturation for Native American youth in the Upper Midwest United States (n = 120) using items on cultural affinity (largely adapted from King's 1992 Acculturation Scale), cultural identity, and family involvement in cultural activities. The measurement model of enculturation was consistent with the unidimensional conceptualization of enculturation presented by others (Little Soldier, 1985; Oetting & Beauvais, 1990–1991; Trimble, 1987) and with more general cross-cultural models of ethnic identity (Phinney & Chavira, 1992). Zimmerman et al. (1996, 1998) applied their one-factor model of enculturation to test its relationship with self-esteem for prediction of alcohol and substance use among Native American youth. Although they did not find direct main effects of enculturation, youth with high cultural identity and high self-esteem reported the least alcohol and drug use, while youth with high cultural identity and low self-esteem reported the most alcohol and drug use.

Whitbeck, Hoyt, Stubben, and LaFramboise (2001) extended Zimmerman et al.'s (1996, 1998) conceptual model by introducing traditional spirituality as a component separate from traditional activities and cultural identification. This major conceptual development was applied to their study that measured the contribution of enculturation, in addition to other known contributors, to the academic performance of American Indian youth in the Upper Midwest United States. Whitbeck Hoyt, Stubben, and LaFramboise (2001) found the three components to load into a single factor in exploratory factor analyses (n = 196) that was positively associated with academic performance.

In a more recent group of studies by LaFromboise et al. (2006); Yoder, Whitbeck, Hoyt, and LaFromboise (2006), and Torres Stone, Whitbeck, Chen, Johnson, and Olson (2006), enculturation using all three components (i.e., cultural identity, traditional activities, and traditional spirituality) appeared to serve as a protective mechanism against mental health problems among Native American peoples. LaFromboise et al. (2006), using the one-factor model comprising all three components, found that maternal warmth and support, perceived community support, and higher levels of enculturation were all associated with increased likelihood of prosocial outcomes among American Indian youth. Like LaFromboise et al. (2006), Yoder et al. conceptualized and measured enculturation using the same basic overlapping components among American Indian youth. The results showed that when enculturation was analyzed in a simple relationship with suicidal thoughts, enculturation did not appear to have a predictive value. However, when all the other variables were taken into account, enculturation proved to be the second strongest predictor (after lower levels of drug use) of low levels of suicidal ideations. A major development was Torres Stone et al.'s move to conceptualizing enculturation as a latent construct assessed by three separate dimensions rather than overlapping components of a single dimension. While traditional activities and traditional spirituality were found to be convincingly associated with alcohol cessation among Native American adults, cultural identity was not. The researchers felt their findings "provide some intriguing evidence concerning the specific mechanisms through which enculturation works" (Torres Stone et al., 2006, p. 242), but overall, no conclusive statements could be made about the role of cultural connectedness on mental health for this population.

While the accumulated empirical evidence is largely in favor of resilience from components of a broad concept of cultural connectedness among Native American adults and youth, researchers have encountered some mixed results when components were removed or changed (Fleming & Ledogar, 2008). We view this ambiguity as largely due to a lack of conceptual framework for the construct of cultural connectedness and the vast heterogeneity within and between FN, Native American, American Indian, and Alaskan Native cultures. Furthermore, conceptual assumptions about cultural connectedness among Native American youth have often been unwarrantedly borrowed from research with Native American adults and thus may not capture cultural connectedness as a developmental process. Further research with FN youth using preexisting enculturation measures would be premature until a conceptual framework is identified and empirically tested. As such, we propose to address this key knowledge gap by examining the underlying structure of cultural connectedness as measured by a new scale of cultural connectedness for FN youth within a Canadian context. We developed the CCS to identify the construct of cultural connectedness as both a central factor in a cultural theory of protection among FN youth and as a potential link between theories of cultural connectedness and positive mental health outcomes. Accordingly, the objective of this study was to develop a new scale of cultural connectedness to link to health outcomes for FN youth by (a) testing the multidimensional nature of the construct as measured by the CCS and its model fit, (b)

investigating the psychometric properties of the CCS item pool, and (c) assessing the evidence for associations between the CCS and theoretically linked constructs.

Method

Participants

Three hundred and nineteen FN, Métis, and Inuit youths (147 male, 162 female; 10 unspecified) enrolled in Grades 8 through 12 from Saskatchewan ($n = 201$) and Southwestern Ontario ($n = 118$), Canada, participated in the current study. Seventy-eight percent of respondents reported living on-reserve. Respondents ranged in age from 11 to 29 ($M = 15.3$; $SD = 2.3$). In Saskatchewan, all youths from our target grades enrolled at schools on the five FN reserve communities under the jurisdiction of the local education council were asked to participate in the study. In Southwestern Ontario, youths appearing on the local school board's FN, Métis, and Inuit student self-identification system as well as youths participating in the board's FN programming were asked to participate in the study. Our research team worked closely with a contact person at each school to recruit youth participants and arrange data collection dates and times. Our research team made a significant effort to give all eligible and willing youth the chance to participate in the study, which required multiple visits to on- and off-reserve schools in urban and remote areas. A small number of respondents self-identified as being other than status or nonstatus FN (i.e., eight Métis, one Inuit). Although the current research initiative involves the development of a FN-specific scale of cultural connectedness for youth, there is as much, if not more, cultural heterogeneity within communities belonging to a particular Nation as there is between Nations. Furthermore, it is not uncommon for Métis youth to identify with their FN ancestry or an Inuit youth to be raised in and identify with an FN community. As such, Métis and Inuit youth were retained in the analysis. A similar rationale was used to retain those individuals in the analyses with higher chronological ages than what is typically considered for "youth," as age is not necessarily congruent with cultural connectedness trajectories.

Measures

Sixty-four cultural connectedness items were generated as described in the procedure section. Of the initial pool of cultural connectedness items (i.e., prior to measure refinement), 28 items had a dichotomous response scale of *no* or *yes*, nine items had a 5-point Likert response scale ranging from *never* to *every day*, and 27 items had a 5-point Likert response scale ranging from *strongly disagree* to *strongly agree*. Six of the last group of items were adapted from the Multigroup Ethnic Identity Measure—Revised (MEIM–R; Phinney & Ong, 2007) to be culturally relevant to FN youth.

Demographics. Demographic questions included gender, age, school district, school name, FN (status or nonstatus), Métis and/or Inuit ancestry, residence (on-reserve or off-reserve), and name of affiliated FN, Métis, or Inuit community or Nation.

Life satisfaction. The Satisfaction with Life Scale for Children (SWLS–C; Gadermann, Schonert-Reichl, & Zumbo, 2010) is a five-item instrument that assesses global life satisfaction. Response categories ranged from 1 (*disagree a lot*) to 5 (*agree a lot*). For example, one item on the SWLS–C is "If I could live my life over, I would have it the same way." The SLWS–C had good scale score reliability in the current sample (Cronbach's $\alpha = .82$, 95% CI [.782, .847]).

Sense of self in the present and in the future. The Hemingway Measure of Adolescent Connectedness—Short Version (MAC 5-A—Short Version, Grades 6–12; Karcher, 2011) includes a six-item self in the present subscale and a five-item subscale reflecting connectedness to self in the future. The former assesses positive connections to youths' lives including connection to family, school, friends, and self, suggesting that youths are benefiting emotionally from their close relationships and feel good about themselves. For example, one item on the self in the present subscale is "I can name three things that other kids like about me." The sense of self in the future subscale is based on the positive qualities of youth that are perceived by others and on actions of the youth to secure a positive future (e.g., "I do things outside of school to prepare for my future."). Both subscales are rated on 5-point scales (*not at all true* to *very true*). The sense of self in the present subscale had acceptable scale score reliability in the current sample (Cronbach's $\alpha = .62$, 95% CI [.543, .681]), as did the sense of self in the future subscale (Cronbach's $\alpha = .69$, 95% CI [.630, .744]).

Spiritual attendance. Respondents were asked how many times they attend spiritual, religious, or faith activities in their community during their average or typical week. Response categories ranged from 1 (*not at all*) to 5 (*five or more times*).

The SWLS–C, MAC5-A—Short Version, and spiritual attendance item were used as positive well-being indicators to assess criterion validity of the cultural connectedness scales.

Procedure

The aim of the study was to use a strengths-based approach to the development of the CCS in order to test the theoretical framework for the concept of cultural connectedness and link it to positive mental health outcomes among FN youth. We determined that the process of developing the scale should be sequential and iterative (Streiner & Norman, 2008) and strike a balance between rigor and community-based collaboration (Crooks, Snowshoe, Chiodo, & Brunette-Debassige, 2013). Approval for the research protocol was obtained through the Centre for Addiction and Mental Health Research Ethics Board. Parental permission was required for youths to participate in the study. Youth participants were given an introduction that described the purpose of the study, their rights as research participants, and how to complete the measures. The measures were administered to youth participants at a total of 11 schools across Southwestern Ontario and Saskatchewan. The cultural connectedness items underwent a process of development and refinement that was guided by Streiner and Norman's (2008) recommendations, as described in detail below.

Item generation. A two-stage process (i.e., development and judgment-quantification) was used to incorporate rigorous instrument development practices and quantify aspects of content validity (Lynn, 1986). The development stage of content validity had three steps: domain identification, item generation, and measure formation. Key informant interviews and focus groups were conducted at this stage. Three key informants (two male, one female)

were selected to be interviewed based on their expertise in the area of cultural connectedness for FN youth in Canada. The informants held positions ranging from national consultant to traditional elder. The interviews identified cultural connectedness domains for FN youth. The length of interviews ranged from 30 min to a 3-day visit with a key informant. The interviews were discontinued when no new themes emerged (i.e., sampling to redundancy). A first focus group was used to help identify and define the content dimensions of cultural connectedness. The focus group included 15 FN, Métis, and/or Inuit youth (seven male, eight female) who were in Grades 9 through 12 and were enrolled in a cultural leadership course, to ensure representation of the target population.

Key informant interviews and the youth focus group data were synthesized and the underlying dimensions were organized in a content matrix according to main themes (i.e., identity, traditions, and spirituality) and by modes of acquisition (i.e., knowledge, intention, direct experience, and indirect experience). The scale developer, the first author of this article, subsequently generated 56 items according to these themes and modes of acquisition.

The matrix and the 56 items were provided to members of a second focus group, and the items were evaluated in terms of their face validity and the extent to which they were relevant, clear, unambiguous, and written in vocabulary and at a reading level that would be understood by potential respondents. The second focus group was composed of 18 adults (five male, 11 female) who constituted the local school board's FN, Métis, and Inuit student achievement committee. The members consisted of local school board staff, school psychologists, FN community band council members and educational service providers, and postsecondary professors. Wording revisions were made to some items according to the feedback obtained from the second focus group. The matrix and the revised set of 56 items were then provided to expert judges in the next stage of scale development to attain content validity ratings.

Judgment-quantification. Content validity of the 56 items was evaluated using a content validity index (CVI; Grant & Davis, 1997). Expert judges were selected based on their extensive knowledge in cultural connectedness for FN youth. Ten expert judges (six male, four female) served as panel members with positions ranging from professor/scholar to traditional elder. All expert judges, with one exception, were FN peoples.

The CVI for each item was calculated by the proportion of experts who rated it as content valid (i.e., a rating of 3 or 4), and the CVI for the entire scale was calculated by the proportion of total items judged to be content valid (Lynn, 1986). For each of the 56 cultural connectedness items rated, the number of expert ratings ranged from five to seven. In addition, expert judges were given the opportunity to provide qualitative feedback regarding the relevance, representativeness, and clarity of the dimensions and associated items, as well as to add or revise the wording of items (Haynes, Richard, & Kubany, 1995). Eight items were added as a result of expert judges' feedback qualitative, increasing the item pool to 64.

Item selection. The item selection stage was based on inspection of rational expert judgments (i.e., CVIs) and the participant responses to the items (i.e., participant endorsement frequencies). Fifteen items of the 56 items for which CVIs were available were discarded due to low CVIs. Items that received low CVIs directly as a result of wording problems alone, as indicated by expert judges, were retained and reworded accordingly. The CVI for the total scale once low CVI items were removed increased from a moderate level of 0.66 to a high level of 0.91. Subsequently, 49 items remained to be examined in further analyses. Participant item endorsement frequencies for the 49 items were checked to ensure that there was adequate item variance across participants. Three items were deleted based on participant item endorsement frequencies that fell above 90% or below 10%, and another item was deleted due to a skewed response scale, leaving 45 items to be used in further statistical analyses (CVIs and participant endorsement frequencies are available upon request).

Results

Exploratory Factor Analysis of the Items

The first step of the analyses involved examining the 45 items in an exploratory factor analysis (EFA) in Mplus (Version 5; Muthén & Muthén, 2007). Full information maximum likelihood was used to estimate the EFA. Item response scales were specified as discrete ordinal using the Mplus categorical/ordinal options and, as a result, a weighted least squares estimation with mean and variance estimator was used. A geomin oblique rotation method was used, permitting correlations among latent factors. Although it was hypothesized that the three components of cultural connectedness identified in the previous literature (i.e., identity, traditions, and spirituality) would be reflected in the factor structure, a lack of empirically driven models in the field for FN youth led us to begin with an exploratory approach.

The scree plot suggested that the three-, four-, five- and six-factor solutions were most interpretable (i.e., eigenvalues greater than one). Model fit was evaluated based on chi-square (noting that chi-square is heavily influenced by sample size), root-mean-square error of approximation (RMSEA), comparative fit index (CFI), and Tucker Lewis index (TLI) and standardized root-mean-square residual (SRMR), as per Kline (2011). Table 1 shows the change in χ^2 for nested models, CFI, TFI, RMSEA, and SRMR for three-component through six-component solutions. Consideration of these fit indices and the robustness of the factors in terms of pattern of structural and pattern coefficients (i.e., loadings) at or above .35 and conceptually meaningful interpretations of the factors led us to select a three-factor solution. A liberal .35 cutoff for factor loadings was chosen to ensure that enough items were retained early in the analyses. Although factor solutions with more than three factors had slightly better fit indices, the three-factor solution was more parsimonious, the fit indices were adequate, and we could not derive meaningful concepts from the additional factors. The three components together accounted for 45.48% of the variance. The criteria for retaining items were as follows: (a) Items with loadings of .35 or higher were selected (i.e., six items removed) and (b) items meeting the .35 criteria on more than one factor were eliminated due to substantial cross-loadings (three additional items removed), resulting in 36 items. The geomin-rotated loadings (i.e., pattern coefficients) for these 36 items are presented in Table 2. The resulting factors were labeled identity (Factor 1: positive sense of exploration and commitment to one's culture, 14 items), traditions (Factor 2: utility of traditional practices and language, 15 items), and spirituality (Factor 3: connec-

Table 1
Goodness-of-Fit Indices for Factor Solutions 3–6

Goodness-of-fit index	3	4	5	6
χ^2 value	344.484	307.986	268.075	243.927
χ^2 *p* value	.000	.000	.000	.000
Comparative fix index (CFI)	.908	.925	.945	.955
Tucker-Lewis index (TLI)	.964	.971	.978	.982
Root-mean-square error of approximation (RMSEA)	.062	.056	.048	.044
Standardized root-mean-square residual (SRMR)	.072	.067	.057	.054

tion to the spirit world through an adoption of a FN worldview, seven items).

A More Parsimonious Measurement Model of the Final Set of Items

We developed and tested a structural equation measurement model based on the final EFA solution using Mplus (Version 5; Muthén & Muthén, 2007). The intent of this analysis is not to confirm (as in a confirmatory factor analysis) an a priori model but to determine whether the fit of the final EFA model from the previous section would still have an adequate fit once we specified it as a more parsimonious measurement model with all cross-loading values (that would be part of an EFA model) set at zero. Using a sequential item analysis strategy exemplified in the development of the Personality Research Form (D. N. Jackson, 1989), a second purpose was to make final refinements by testing whether additional items could be removed without reduction in fit. Replication of this model would need to be tested in future research with new samples. In an attempt to improve these fit indices while maintaining adequate scale length, the loadings for each item were examined. The items with the lowest three loadings (i.e., pattern coefficients) from the CFA on the cultural identity and traditions scale were eliminated (i.e., six items in total), one at a time, with re-estimation of the model at each stage. No items on the spirituality scale were removed because the item properties were adequate. Modification indices were also examined during the final selection of items. One item on the traditions scale had a high modification index associated with a cross-loading and was therefore removed. Changes to model fit based on the sequential removal of items are shown in Table 3, and standardized loadings for the remaining 29 items (indicate final number of items in each scale) are presented in Table 4. Fit indices for the final CCS indicated acceptable model fit, $\chi^2(103) = 247.526$, $p < .001$; CFI = .926; TLI = .973; RMSEA = .066; weighted root-mean-square residual = 1.069 (Hu & Bentler, 1999; Yu & Muthén, 2001). These results provide initial support for the measurement model of cultural connectedness.

Reliability and group differences. All three subscales demonstrated adequate scale score reliabilities as demonstrated by Cronbach's alpha values of .872 for identity, .791 for traditions, and .808 for spirituality. The Pearson's *r* correlations among the three scales ranged from .49 to .69 (see top split of Table 5), indicating that these measures represent an underlying common construct of cultural connectedness as well as unique aspects associated with identity, traditions, and spirituality. Several independent samples *t* tests were conducted to examine group differences. Results were interpreted at a more conservative *p* level of < .01. Females reported significantly higher scores than did males on the identity scale, females $M = 44.1$, $SD = 6.12$; males $M = 41.6$, $SD = 8.10$; $t(261) = -2.97$, $p < .01$, while no significant differences were found on the traditions and spirituality scales. The gender difference for the identity scale may be reflective of a higher proportion of males lacking a coherent identity or possessing a negative sense of cultural identity, such as gang affiliation based on cultural kinship. On-reserve respondents reported significantly higher scores on the traditions scale than respondents living off-reserve [on-reserve $M = 36.9$, $SD = 8.03$; off-reserve $M = 29.4$, $SD = 10.10$; $t(63) = 4.95$, $p < .001$], and respondents living on-reserve also showed significantly higher scores on the spirituality scale [on-reserve $M = 23.1$, $SD = 5.72$; off-reserve $M = 20.4$, $SD = 6.44$; $t(288) = 2.89$, $p < .01$]. These findings suggest that living on-reserve is related to one's participation in traditional activities and the degree to which one is embedded in a spiritually informed FN worldview, which may be related to limited access to cultural and spiritual opportunities off-reserve. No other significant group differences were found.

Criterion validity. Table 5 (bottom split) shows Pearson correlation coefficients between the cultural connectedness scales with life satisfaction, sense of self in the present, sense of self in the future, and spiritual attendance. All correlations between the cultural connectedness scales and their theoretically relevant measures were significant and in the expected direction, providing evidence for criterion validity. Significant correlations between the cultural connectedness scales and the sense of self measures ranged from $|r| = .10$ to .28 all in the expected direction. These findings suggests that those youth who identify closely with their FN culture, who participant in traditional activities, who hold a spiritual worldview also tend to feel a connection to the present while being oriented toward the future. A significantly stronger association between sense of self in the future and identity ($r = .28$) than sense of self in the future and traditions ($r = .10$, $z = 2.29$, $p < .05$) was found, suggesting that a cohesive self is particularly important for future orientation. The cultural connectedness scales were highly associated with spiritual attendance ($|r| = .27$ to .51), with a significantly stronger correlation with traditions ($r = .51$) than spirituality ($r = .36$, $z = 2.24$, $p < .05$) and identity ($r = .27$, $z = 3.39$, $p < .001$). This reflects the behavioral nature of the spiritual attendance item (i.e., "I attend spiritual/religious/faith activities"), as the traditions scale is more concerned with traditional activities (usually conducted within the spiritual community), while the spirituality scale is composed of

Table 2
Cultural Connectedness Items and Rotated Loadings for 36 Items

Item	Factor 1	Factor 2	Factor 3	*M*	*SD*
25. I plan on trying to find out more about my [Aboriginal/FNMI] culture, such as its history, traditions, and customs.	**.599**	.037	.161	4.10	1.12
29. I have spent time trying to find out more about being [Aboriginal/FNMI], such as its history, traditions and customs.	**.700**	.050	.009	3.57	0.98
30. I have a strong sense of belonging to my [Aboriginal/FNMI] community or Nation.	**.605**	.115	.172	3.91	1.01
32. I have done things that will help me understand my [Aboriginal/FNMI] background better.	**.599**	.242	.043	3.76	0.91
33. I have talked to other people in order to learn more about being [Aboriginal/FNMI].	**.630**	.074	.073	3.70	0.98
34. When I learn something about my [Aboriginal/FNMI] culture, I will ask someone more about it later.	**.580**	.023	.055	3.76	0.98
35. I feel a strong attachment towards my [Aboriginal/FNMI] community or Nation.	**.576**	.031	.221	3.77	1.01
41. If a traditional person, Elder, or Clan Mother spoke to me about being [Aboriginal/FNMI], I would listen to them carefully.	**.596**	.143	.230	4.29	0.94
42. I would take a [Aboriginal/FNMI] studies course at school if I had the chance, even if my friends were not in the class.	**.753**	.138	.060	4.00	1.10
43. I feel a strong connection to my ancestors.	**.440**	.138	.142	4.05	1.07
44. I feel a connection to all things in life.	**.390**	.127	.325	3.20	1.02
45. Being [Aboriginal/FNMI] means I sometimes have a different way of looking at the world.	**.527**	.155	.244	3.66	1.07
50. It is important to me that I know my [Aboriginal/FNMI] language.	**.647**	.021	.130	4.19	0.97
61. How often do you hear people from your family or someone you are close with talk about being [Aboriginal/FNMI]?	**.355**	.188	.017	3.15	1.38
4. I can understand some of my [Aboriginal/FNMI] language.	.333	**.580**	.214	3.96	1.27
5. I can speak some of my [Aboriginal/FNMI] language.	.287	**.414**	.152	3.89	1.33
12. I use tobacco for guidance.	.004	**.462**	.318	2.38	1.71
13. I have participated in a cultural ceremony (examples: Sweatlodge, Moon Ceremony, Sundance, Longhouse, Feast or Giveaway).	.227	**.662**	.182	3.51	1.58
14. I have helped prepare for a cultural ceremony (examples: Sweatlodge, Moon Ceremony, Sundance, Longhouse, Feast or Giveaway).	.129	**.601**	.151	2.54	1.74
15. I have offered food or feasted someone/something for a cultural reason.	.060	**.491**	.129	3.72	1.46
21. Someone in my family or someone I am close with attends cultural ceremonies (examples: Sweatlodge, Moon Ceremony, Sundance, Longhouse, Feast or Giveaway).	.036	**.701**	.188	4.10	1.17
24. I plan on attending a traditional ceremony in the future (examples: Sweatlodge, Moon Ceremony, Sundance, Longhouse, Feast or Giveaway).	.073	**.546**	.140	3.73	1.45
26. I have honored my grandmothers and/or grandfathers in a Memorial Feast or "Feast of the Dead."	.053	**.494**	.118	3.53	1.57
28. I have a traditional person, Elder, or Clan Mother who I talk to.	.023	**.530**	.216	3.18	1.70
56. How often do you make tobacco offerings for cultural purposes?	.002	**.589**	.107	2.02	1.00
58. How often do you use sage, sweetgrass, or cedar in any way or form?	.191	**.674**	.002	3.02	1.23
59. How often does someone in your family or someone you are close with use sage, sweetgrass, or cedar in any way or form?	.143	**.708**	.040	3.34	1.30
62. How often have you listened to a traditional person, Elder, Clan Mother, or someone you are close with tell traditional stories?	.117	**.444**	.040	2.89	1.08
64. How often do you hear people from your family or someone you are close with speak in their [Aboriginal/FNMI] language?	.009	**.521**	.040	3.74	1.42
3. I know my cultural/spirit name.	.055	.085	**.383**	2.68	1.75
9. In certain situations, I believe things like animals and rocks have a spirit like [Aboriginal/FNMI] people.	.209	.172	**.395**	3.79	1.41
48. The eagle feather has a lot of meaning to me.	.238	.128	**.487**	3.78	1.17
51. When I am physically ill, I look to my [Aboriginal/FNMI] culture for help.	.033	.141	**.732**	3.07	1.06
52. When I am overwhelmed with my emotions, I look to my [Aboriginal/FNMI] culture for help.	.010	.046	**.857**	3.04	1.08
53. When I need to make a decision about something, I look to my [Aboriginal/FNMI] culture for help.	.067	.017	**.789**	2.96	1.07
54. When I am feeling spiritually disconnected, I look to my [Aboriginal/FNMI] culture for help.	.237	.010	**.696**	3.23	1.17
Eigenvalue	14.672	3.678	2.118		

Note. High factor loadings are in bold type.

items that are reflective of a spiritual view of the world (i.e., "In certain situations, I believe things like animals and rocks have a spirit like [Aboriginal/FNMI] people"). Identity and spirituality were modestly correlated with life satisfaction ($r = .18$ and $r = .099$, respectively), with a significantly stronger association between life satisfaction and identity than between life satisfaction and traditions ($z = .006$, $p < .05$), suggesting that youth who see themselves as FN and thus adopt a FN worldview tend to report being happier with their lives than those who merely attend cultural activities or events.

Discussion

A sequential approach with a strong emphasis on content validity was used to develop and refine the CCS for use with FN youth in Canada by combining rational expert judgments and empirical

Table 3
Goodness of Fit Index Changes for the Three-Factor Solution Based on the Sequential Removal of Items

Goodness of fit index	36 items[a]	30 items[b]	29 items[c]
χ^2 value	313.853	261.676	247.526
χ^2 *p* value	.000	.000	.000
Comparative fit index (CFI)	.902	.919	.926
Tucker-Lewis index (TLI)	.961	.971	.973
Root-mean-square error of approximation (RMSEA)	.071	.068	.066
Weighted root-mean-square residual (WRMR)	1.161	1.089	1.069

[a] Fourteen identity, 15 traditions, and seven spirituality items. [b] Eleven identity, 12 traditions, and seven spirituality items. [c] Eleven identity, 11 traditions, and seven spirituality items.

data. This process included focus groups and interviews with members of the target population to define and expand the item pool, independent evaluations of the items by content experts, and selection of the best items based on exploratory and confirmatory factor analyses. This iterative process of item selection resulted in an adequate fit for the final model consisting of three scales (i.e., identity, traditions, and spirituality) based on 29 items. Although part of the scale construction process also focused on promoting discriminant validity of the scales, correlations among the cultural connectedness scales remained quite large, suggesting that the constructs are interrelated. We expected some degree of overlap, given that knowledge and practice of spiritual ways and values reflect both cultural practice and cultural identity (Whitbeck, Hoyt, Stubben, & LaFromboise, 2001). Although the three scales share a common source of variance, they have unique components that reflect the theoretical dimensions that we hypothesized. The analyses indicated good scale score reliability of the scales, especially given the small number of items per scale (ranging from seven to

Table 4
Items and Standardized Factor Loadings of the Final 29-Item Cultural Connectedness Scale

Item	Standardized Loadings
Identity (11 items)	
25. I plan on trying to find out more about my [Aboriginal/FNMI] culture, such as its history, traditions, and customs.[a]	.686
29. I have spent time trying to find out more about being [Aboriginal/FNMI], such as its history, traditions and customs.[b]	.674
30. I have a strong sense of belonging to my [Aboriginal/FNMI] community or Nation.[b]	.791
32. I have done things that will help me understand my [Aboriginal/FNMI] background better.[b]	.753
33. I have talked to other people in order to learn more about being [Aboriginal/FNMI].[b]	.713
34. When I learn something about my [Aboriginal/FNMI culture], I will ask someone more about it later.[b]	.611
35. I feel a strong attachment towards my [Aboriginal/FNMI] community or Nation.[b]	.739
41. If a traditional person, Elder, or Clan Mother spoke to me about being [Aboriginal/FNMI], I would listen to them carefully.[b]	.641
43. I feel a strong connection to my ancestors.[b]	.614
45. Being [Aboriginal/FNMI] means I sometimes have a different way of looking at the world.[b]	.574
50. It is important to me that I know my [Aboriginal/FNMI] language.[b]	.667
Traditions (11 items)	
4. I can understand some of my [Aboriginal/FNMI] language.[a]	.561
12. I use tobacco for guidance.[a]	.704
13. I have participated in a cultural ceremony (examples: Sweatlodge, Moon Ceremony, Sundance, Longhouse, Feast or Giveaway).[a]	.574
14. I have helped prepare for a cultural ceremony (examples: Sweatlodge, Moon Ceremony, Sundance, Longhouse, Feast or Giveaway).[a]	.570
15. I have offered food or feasted someone/something for a cultural reason.[a]	.620
21. Someone in my family or someone I am close with attends cultural ceremonies (examples: Sweatlodge, Moon Ceremony, Sundance, Longhouse, Feast or Giveaway).[a]	.793
24. I plan on attending a cultural ceremony in the future (examples: Sweatlodge, Moon Ceremony, Sundance, Longhouse, Feast or Giveaway).[a]	.681
28. I have a traditional person, Elder or Clan Mother who I talk to.[a]	.627
56. How often do you make tobacco offerings for cultural purposes?[c]	.606
58. How often do you use sage, sweetgrass, or cedar in any way or form?[c]	.793
59. How often does someone in your family or someone you are close with use sage, sweetgrass, or cedar in any way or form?[c]	.744
Spirituality (7 items)	
3. I know my cultural/spirit name.[a]	.414
9. In certain situations, I believe things like animals and rocks have a spirit like [Aboriginal/FNMI] people.[a]	.663
48. The eagle feather has a lot of meaning to me.[b]	.744
51. When I am physically ill, I look to my [Aboriginal/FNMI] culture for help.[b]	.811
52. When I am overwhelmed with my emotions, I look to my [Aboriginal/FNMI] culture for help.[b]	.832
53. When I need to make a decision about something, I look to my [Aboriginal/FNMI] culture for help.[b]	.820
54. When I am feeling spiritually disconnected, I look to my [Aboriginal/FNMI] culture for help.[b]	.865

[a] *No* or *Yes* response format. [b] *Strongly disagree, Disagree, Do not agree or disagree, Agree, Strongly disagree* response format. [c] *Never, Once/twice in the last year, Every month, Every week, Every day* response format.

Table 5
Correlations Between the Cultural Connectedness Scales and Other Well-Being Measures

Variable	Identity	Traditions	Spirituality
Identity	—		
Traditions	.485***	—	
Spirituality	.692***	.535***	—
Life Satisfaction	.176**	.006	.099*
Sense of Self in the Present	.166**	.131**	.136**
Sense of Self in the Future	.276***	.097*	.192***
Spiritual Attendance	.273***	.506***	.358***

* $p < .05$. ** $p < .01$. *** $p < .001$.

11). Criterion validity was demonstrated with significant correlations between the cultural connectedness scales and well-being indicators from other measures, in the expected direction, and consistent with existing theories and findings from other studies (e.g., Chandler & Lalonde, 1998; Phinney & Ong, 2007).

While the current study supports the general consensus among researchers regarding the importance of cultural connectedness for FN peoples' mental health (Whitbeck, Hoyt, Stubben, & LaFromboise, 2001; Zimmerman et al., 1996), our results advance the findings from previous studies with respect to the structure of the cultural connectedness construct for FN youth, specifically. Although our results are mostly consistent with previous models that treat cultural connectedness as a latent construct composed of three overlapping components (Torres Stone et al., 2006), the current study extends the boundaries of this knowledge by providing evidence for a three-factor model, where cultural connectedness is conceptualized as being composed of the three separate but interrelated dimensions that contribute uniquely to the construct. This study provides an orienting framework that guides future measurement of cultural connectedness among FN youth that will serve to untangle the collection of mixed results that researchers have encountered when components are removed or changed (Fleming & Ledogar, 2008). Research with our three distinct cultural connectedness dimensions should yield clearer results.

Another major development in the current study was the use of a strengths-based approach to scale development and validation. Explanations about mental health issues facing FN youth have typically been framed in terms of individual deficits. Deficit-based research has often been driven by dominant epistemologies and research methodologies that render research findings unrepresentative of the social-cultural realities of FN youth, thus leaving little benefit to the participating communities. A strengths-based approach to research, alternatively, is particularly important with FN peoples because it helps to facilitate a shared collective interest, build community collaboration, establish mutual benefits, and cultivate endogenous helping resources already existent in communities, while taking the historical context into account.

FN researchers are often deemed the best authorities on the current status of their communities and therefore are in the best position to conduct research affecting FN peoples and communities (Saini, 2012). When choosing a research design that is compatible with FN values, priorities, and needs, Bentz and Shapiro (1998) recommend achieving a consistency between the worldview of the researcher, the context to be studied, and the set of research methods to be used. In the current study, the developer of the CCS is a member of Ojibway and Métis Nations from Ontario, Canada, and has had extensive involvement with Cree Nations from Saskatchewan, Manitoba, and British Columbia. The scale developer, working from both FN and Western epistemologies (King, 2012), acted as a culturally competent messenger to engage formal and traditional/moral authorities and research partners in a collaboration that led to a sense of shared collective interest in the study that met community needs and priorities. The scale developer understood the cultural protocols for acquiring the right to access traditional and community knowledge and was able to incorporate this information into the scale development where feasible and appropriate. We feel our integrative, strengths-based approach increased the chances that the results are representative, relevant, and required from the perspective of FN communities and its members (Crooks et al., 2013).

While this study provides some insights into the role of cultural connectedness in resiliency frameworks for FN youth, some limitations should be noted. First, perceived discrimination, a potential mediator of cultural connectedness among FN peoples, was not assessed in the current study due to our adherence to a strengths-based protocol. Perceived discrimination is considered one indicator of culture conflict in that it represents perceived rejection and maltreatment by the dominant mainstream culture. We feel that Mohatt et al.'s (2011) culturally based ACS may be a promising tool for future research when assessing the construct of perceived discrimination among FN youth from a strengths-based perspective. The self (e.g., negative self-statements or stereotypes), family, community, and the surrounding environment, as measured by the ACS, are often the key sources of discriminatory acts. At the same time, acknowledging the historical injustice against FN peoples is equally important for the promotion of mental health and healing as a strengths-based approach. Researchers should strive to strike a balance between a strengths-based approach at the individual and community level, while recognizing the negative impacts at the structural and societal level (Duran & Duran, 1995). In this way, a strengths-based approach would not mean ignoring negative historical and social realities facing FN youth, their families, and their communities, but rather would serve to promote the health in the light of these injustices.

Second, the CCS cannot be deemed factorially invariant until the factor structure is replicated in an independent sample. Future research should also explore other types of criteria and predictor variables. Given the diversity of the sample, item statistics would likely be replicated in samples with similar characteristics; however, it may be necessary to modify the scale content for use with different FN youth populations if it is determined that significant within- and/or between-group heterogeneity exists. Future researchers should use the CCS as a basis or start point but adapt the items to their population or community accordingly and are strongly encouraged to engage in collaborative efforts with the FN communities of interest to identify culturally relevant content. In addition, although we hypothesize that cultural connectedness is important to the well-being of FN youth, its contribution to the resilience process likely changes throughout the lifespan, particularly during adolescence and early adulthood, through a process of exploration and commitment (Phinney & Ong, 2007). Prior studies in this area have not tested for age changes in cultural connectedness levels. Such relationships can only be elaborated satisfactorily

with longitudinal data. Our research team is currently undertaking longitudinal work concerning the stability of the factor structure across time and the predictive capacity of the CCS. This longitudinal study will investigate the pattern of cultural connectedness trajectories over the adolescent and early adult years, and as a function of other influences.

The CCS has a number of potential applications both for research and prevention. Our findings contribute to a growing body of work that empirically support an understanding that FN communities have utilized in a variety of treatment settings for hundreds of years. However, empirical support for cultural connectedness may have important policy and funding implications for prevention work, curriculum-based programming, and other cultural-preservation initiatives (Kreuter, Lukwago, Bucholtz, Clark, & Thompson, 2003; LaFrance & Nichols, 2008). It provides researchers, service providers, and program evaluators with a model that focuses on the aspects of FN culture that may be supported and strengthened in programs to promote healthy youth functioning. It offers a foundation for professionals and researchers to begin to work with FN communities, from the perspective of the community itself, toward the broader movement of helping FN youth recover their own cultural connection.

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