IN SEARCH OF AN EFFECTIVE METHOD OF MEASURING FIRST NATIONS CHILDREN’S
SPEECH AND LANGUAGE DEVELOPMENT

by

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Abstract

The present study examines the effectiveness of the Fluharty Preschool Speech and Language
Screening Test – Second Edition (FPSLST-2) as a speech and language measure for First Nations
children. In the literature (Gould, 2008b; Klenowski, 2009; Pearce & Williams, 2013; Peltier, 2009)
and in practice, questions have been raised about whether any standardized speech language
assessment is effective in measuring skills of First Nations children. The effectiveness of speech and
language standardized tests was investigated by comparing test performance of two groups within the
Rainy River District in Ontario, Canada: First Nations (FN) and Non-First Nations (NFN) children
in the Rainy River District School Board (RRDSB) over a three year period (2009-2011). The
study’s target population included 429 Senior Kindergarten (SK) children comprised of 314 NFN
children and 115 FN children from 11 elementary schools. There were overall differences in scoring
patterns, with NFN children performing significantly better than FN children. A Mantel-Haenszel
Differential Item Functioning (DIF) analysis provided a detailed picture of how individual items
functioned psychometrically in the two groups. This analysis found six phonology items showing
small and moderate amounts of uniform and non-uniform DIF and one language item showing a
moderate level of non-uniform DIF. Review of these items by the Native Language and Curriculum Coordinator of the RRDSB suggested explanations for the difference in performance. In particular, items with the sounds /fl,v/ on the Articulation subtest exhibited a moderate level of uniform DIF in favour of the NFN group because the sounds f, l, r, and v do not exist in the Ojibwe language spoken in the Rainy River District. In addition, because the Ojibwe language is comprised of 80% verbs, it is reasonable to expect DIF for items describing verbs, which was noted; however, the DIF detected was non-uniform. Suggestions are provided for how the assessment’s content as well as the administration and scoring might be adapted to better evaluate the speech and language development of FN children in the Rainy River District.
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Most importantly, I want to thank my family and friends. My husband, Doug Anderson, was the wind beneath my wings throughout this academic endeavor and always provided the motivation and incentive to keep at it. My sons, Justin and Will, I thank you for being proud of me and coping with my absence. My father and mother, Jack and Helen Stokes were my inspiration and I will always remember them telling me I could do anything I set my mind to.

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Note on Terminology

Many researchers and practitioners have struggled with terminology when authoring documents involving the First Peoples of Canada because the preferred choices are not unanimous. There is no consensus in the speech language pathology field; therefore I will utilize the wording used in the Special Issue on Service Delivery to First Nations, Inuit and Métis in Canada: Part 1 (2011).

The goal is to strive to be respectful and appropriate given the specific circumstances encountered (Kay-Raining Bird, 2011).

This author has chosen to use the term First Nations (FN) people to describe the individuals and First Nations communities within the Rainy River District because it was determined through discussions with the Rainy River District First Nations communities, Seven Generation Education Institute, Aboriginal Lead and Native Language and Curriculum Coordinator of the Rainy River District School Board that this term was preferred and consistently used to refer to the individuals living on and off the ten First Nations communities. On occasion, the term Aboriginal or Indigenous Peoples will be used when broadly addressing all First Nations, Métis, and Inuit people. A direct quotation or paraphrase of an author will use the terminology chosen by that author.
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CHAPTER ONE: INTRODUCTION/ROOTS OF THE STUDY

Statement of the Problem

Educational materials and instruction in Ontario’s schools assume that children have speech and language skills typical of their age when entering Kindergarten. Therefore children who do not have age appropriate speech and language skills may find it difficult to understand the instruction and/or express or communicate their learning. To ensure early intervention, some school boards screen all children’s speech and language skills upon entry into Kindergarten, so that children whose test results suggest speech and language skill deficits can be provided extra support to improve their skills.

As a practicing Speech Language Pathologist (SLP) in Northwestern Ontario for more than 26 years, administering the battery of speech and language tests to children beginning school in the Rainy River District School Board (RRDSB) for the past 15 years, I have observed that First Nations (FN) children receive lower scores on these tests on average than Non-First Nations (NFN) children; however it may be that these test results incorrectly label children with deficits or disorders when there, are merely language or dialect differences.

Using data from an Ontario school board with a large population of FN students, this study investigated the differences in scores between Senior Kindergarten (SK) FN children and NFN children. In particular, differential item functioning (DIF) analysis was used to identify test items that are more or less difficult for FN and NFN children, after controlling for differences in the children’s overall performance on each subtest.
The primary objective of this research is to investigate the test items within a widely used standardized articulation (speech) and language screening tool (*The Fluharty Preschool Speech and Language Screening Tool – Second Edition*; Fluharty, 2001) for evidence of possible bias, specifically, differential functioning of the items for FN and NFN children. A further objective is to suggest, based on the review of test items and the resultant data analyses by myself and the RRDSB Native language and curriculum coordinator, J. Jones, why these items may not accurately reflect the communicative knowledge, skills, and abilities of FN children.

*The Fluharty Preschool Speech and Language Screening Tool – Second Edition* (FPSLST-2) is a widely used screening tool that provides rapid identification of children aged 3 years, 0 months to 6 years, 11 months for whom a complete speech and language assessment is warranted. It contains 6 subtests: articulation, repeating sentences, following directives, describing actions, answering questions and sequencing events. Scores are intended to reflect skills in articulation, receptive language, expressive language, and composite language. Because the FPSLST-2 is an entry-level speech and language screen for all the early learners in the RRDSB, the results should indicate which children may be at risk for speech and language problems. This could impact programming, grouping of children, and parents’ anxiety within the early learning programs and, if the results are unreliable or invalid for the FN children, the impact may follow them throughout their school careers.

**The Rainy River District of Ontario**

The Rainy River District is located in the most westerly part of the province of Ontario. It borders Manitoba to the west and Minnesota to the south. As of 2011, the population was

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1 Jason Jones’s biography is included in Appendix B
20,370 with an area of 15,484.83 square kilometres. It includes ten FN communities whose members speak either Ojibwe, a First Nations English Dialect (FNED) or English. On a more national level, there are 617 FN communities in Canada and Ontario has 126 of the total, second only to British Columbia which has 198 (Statistics Canada, 2011).

The RRDSB has eleven elementary schools and three secondary schools and close to 30% of the student composition is FN. Most of the FN students are FNED speakers of Ojibwe who live in and out of ten FN communities within the district.

The Ojibwe language has a number of dialects extending over a vast area of Canada and the Great Lakes states of the United States. The Saulteaux and Northern Ojibwe dialects are spoken in Northern Ontario where the Rainy River District is situated, and each of the many dialects across Canada has a distinct cultural and linguistic tradition. The FN people in the Rainy River District refer to themselves as Ojibwe or Anishinaabe, which is defined as “the original people” (N. Jones, personal communication, November 10, 2012). The features and distinctions of the Ojibwe language spoken in the Rainy River District are included in Appendix A. The diversity of FNEDs in Canada is further explored in the literature review.

Speech and Language Assessments and First Nations English Dialects

In many educational settings, as well as Ontario schools, standardized tests determine if a child requires additional support such as curriculum accommodations or modifications or the assignment of Educational Support Personnel. Anecdotal or nonstandardized assessment methods alone do not meet the criteria for accessing Special Education funding. In some cases, criteria such as any scores falling two standard deviations below the mean are interpreted as indicating a disability or impairment, and special education or speech language programming is
then prescribed. This is the case for assessments by school psychologists, as well as by speech language pathologists (Biddle, Watson, Hooper, Lohr, & Sutton, 2002; Ontario Ministry of Education, Special Education Funding Guidelines, 2014b).

Because the standardized tests are grounded in scientific and Eurocentric knowledge and values, the reliability and validity of speech and language ability estimates for FN children is uncertain because the assessment tools have not been investigated for this population. Canadian SLPs have long struggled with determining the speech/language strengths and needs of FN children since their methods of assessment are not consistent with the FN culture, language, and worldview. Because of this, the Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA) has developed a First Nations Special Interest group to study issues such as service provision, accessibility, and culturally sensitive assessment and intervention methods for FN children and their families.

According to 2006 Canadian census data, only 16% of FN children ages 14 and under speak their Indigenous language as their first language. However, FN children who do not speak an FN language, but use an FNED, are also learning a new language when they enter school. Ball refers to this as “the Standard form of English” (Ball, 2009, p. 1).

Even though a large number of FN children do not fluently speak an FN language, Peltier (2009) suggests the linguistic and cultural influences in terms of vocabulary, syntax, and articulation patterns are very apparent in their dialect of English. Peltier, an FN SLP, argues that FNEDs impact the FN students’ articulation and language learning and that teachers need to have training on how to employ appropriate assessment and teaching strategies in the classroom (Peltier, 2009). Appropriate teaching strategies and assessment methods may involve the use of a
variety of modalities (visual, kinesthetic) other than the traditional auditory/verbal method when delivering information and ascertaining learning in the classroom. The auditory/verbal method suggests that messages are communicated orally and are received through the auditory channel—from a sender’s mouth to a receiver’s ear.

Unfortunately, many young FN children who use FNEDs can be wrongfully labeled as having delayed or deficient language development by teachers and SLPs because the assessment tools that are used to determine strengths and needs were developed for children of European heritage with English or French as their first language (Ball, 2009). This is a recurrent theme in the literature globally (Ball, 2007; Gould, 2008a, 2008b; Klenowski, 2009; Pearce & Williams, 2013; Peltier, 2009). According to Ball (2009), to date, no research has investigated the psychometric properties of an assessment or screening tool that measures speech/language skills of Canadian FN children. Because the available assessments do not reflect the cultural experiences, language dialect, and worldview of FN children, it is possible that the present measures may yield biased results. This is supported in the broader context, as the following literature review will demonstrate.

Gould (1999) states that approaches to assessment that support speech/language development of FN children need to reflect a variety of learning styles, cultural experiences, language, and worldview in order to accurately define a speech/language profile for FN children. Once the results have been ascertained, even as important is the assistance in interpretation by a native speaker or an FNED speaker who is well versed in the traditions, culture, and community life of these children (Gould, 1999).
Research on learning styles may provide some guidance for practitioners (although it is important to note that the empirical evidence for learning styles is mixed, e.g., Pashler, McDaniel, Rohrer & Bjork, 2009). Rasmussen, Baydala, and Sherman (2004) conducted an extensive literature review to determine whether FN learners had particular learning preferences. This literature review included both research on ways of learning (e.g., visual-spatial, holistic) and research related to culturally responsive methods of instruction and assessment for Aboriginal children. The studies they included in their review suggested that FN learners tended to prefer more visual-spatial learning as opposed to the verbal/auditory learning style most common in Canadian classrooms. For example, many teachers are accustomed to giving oral instructions in the classroom, which is appropriate for children who demonstrate strong auditory processing skills. However, for a child who prefers visual-spatial learning, oral instructions can take extra time to process, which can result in children missing information that is presented while they are processing earlier information, thus falling behind their peers in classroom activities. Most of the empirical studies reported by Rasmussen et al. are from the 1960–1980s, and more recent studies seem to present contrary findings; furthermore, it is important that researchers and service providers not assume that an entire ethnic group prefers to learn in the same manner (Hughes, More, & Williams, 2004). Much of the empirical research on Aboriginal or FN learning styles conducted globally discounts the claim that all FN children are stereotyped as having one preferred learning style (Chrisjohn & Peters, 1989; Hughes et al., 2004).

Nevertheless, it may be useful to ask: Could many children, including FN children, demonstrate their learning or knowledge more effectively if given the opportunity to present meaning and/or comprehension in alternate ways?
Based on Hilberg and Tharp’s (2002) review of the literature on FN learners, the following identified learning methods and styles may be preferred by Aboriginal students: holistic education, use of a variety of visual organizers and hands-on manipulatives, a reflective mode of learning and preference for collaborative tasks. Hilberg and Tharp based their suggestions on theoretical perspectives and research findings of the learning styles of American Indian and Alaska Native students. For example, they cite a study that links learning style to achievement. Riding and Rayner (as cited in Hilberg & Tharp, 2002) found that, given a choice of learning material, learners with auditory/verbal preferences will choose the text version and those with visual preferences will choose a version with illustrations. In addition, they found that those with visual preferences almost double their learning performance if they are presented with information that includes text and illustration compared to just text, while the performance of learners with auditory/verbal preferences, remains the same. Many of the studies on learning styles may need to be replicated with specific FN communities in order to provide insight into the many diverse FNEDs and community cultures to provide implications for practitioners; however this particular study supports observational documentation when noting that FN children in the Rainy River District tend to perform better on speech and language assessments if given more time to process auditory information or if they have access to pictures or illustrations.

J. Jones, the Native Language and Curriculum Coordinator at the RRDSB, states that, in his experience with the FN communities in the Rainy River District, many of the FN children and adults are learners with visual preferences. For example, he describes himself as thinking in pictures, similar to slides in a film, and he attributes this to the linguistic makeup of the Ojibwe language spoken. He adds that, since the language is 80% verbs, most levels of expression depict relationships of people to people, people to objects, and objects to people, almost evoking a
language of movement or action; hence the tendency to speak and think visually rather than purely auditorily (J. Jones, personal communication, September, 21, 2013).

Toulouse (2008a) further refers to findings from case studies (Bell, 2004) and a study conducted with FN students themselves (Kanu, 2002) to support the use of learning preferences in the classroom. These studies will be discussed in more depth in the literature review which follows.

On most formal articulation and language assessments, the administration instructions are very rigid and inflexible, and most are designed for examinees who prefer auditory/verbal learning. Oral only instruction is typical, and repetition of an item is often not permitted. Pictures are used only in some subtests. Speech/language standardized assessment tools do incorporate visual and kinesthetic (see Appendix E – glossary) components within a receptive language measure, since the goal is to determine comprehension capabilities (e.g., following directions or picture identification such as the Peabody Picture Vocabulary Test). In addition, in a testing situation where a child is non-verbal and the assessor’s goal is to determine appropriate methods of augmentative communication, visuals are readily used. In contrast, in determining expressive language skills, the assessor is typically looking for verbal responses that may be evoked by answering questions after listening to a passage. Often, the standard speech and language testing prompts do not include pictures when attempting to obtain a connected language sample. Pictures may be included more often in standardized tests when the required response is a single word such as in an expressive vocabulary test (e.g., The Expressive One Word Vocabulary Test).
When it comes to assessing the progress of young children and students, much has been written and researched about the validity and reliability and possible bias of speech and language testing methods (Beitchman, Nair, Clegg, & Patel, 1986); however, do these testing methods measure what they say they are measuring for all examinees? It is not only the test items (content) within a measure that need to be examined, but also the method of administration and scoring of these measures.

The Canadian Council on Learning states,

Aboriginal people, educators and governments working with First Nation, Inuit and Métis communities to improve learning outcomes face two persistent challenges: how to articulate a comprehensive definition of what learning success means for Aboriginal people, and how to develop a culturally appropriate framework for measuring it. (Canadian Council on Learning, 2009, p. 4)

The statement by the Canadian Council on Learning can apply to the measurement of speech and language development in FN children. For instance, Ball (2007) and Ball and Lewis (2006) speak to the question of how FN families define communicative competence in their children and how SLPs might be able to assess that competence.

Assessment and intervention programs such as those conducted by speech and language pathologists have followed the trend that education has set in terms of their methods of student evaluation and instruction (Ball, 2009; Gould, 1999; Klenowski, 2009; Peltier, 2011b). Very little FN cultural, linguistic, or worldview content has been integrated into the measurement tools used or the intervention strategies employed. And more important, if some integration has been emerging, it is not consistently employed within the SLP profession (Peltier, 2011a). This calls for additional preservice training in SLP educational programs so that new graduates are equipped to work with culturally and linguistically diverse populations (Ball & Peltier, 2011).
Because the empirical research available in Canada is lacking when it comes to the speech and language assessment of FNED children, this investigation is an important first step toward ensuring that speech and language measurement tools are culturally and linguistically meaningful for FN families and are flexible enough to capture the learning, language, and worldview of FN children, an endeavour that is long overdue.

**Rationale for the Study**

The present investigation of whether a standardized speech and language measure effectively demonstrates an accurate and meaningful profile of FN children’s skills was of particular interest to the Northern Ontario Educational Leadership consortium (NOEL). NOEL is a group of leaders from educational organizations in Northwestern Ontario that serves as a forum to discuss issues of common concern and to develop projects that will be of direct benefit to students. NOEL is a partnership between nine Northwestern Ontario district school boards and three educational institutions/organizations. All representatives, and especially their FN’s representative, CEO of Seven Generations Education Institute, Delbert Horton, agreed that this type of research was long overdue and had the potential to be extremely valuable to the FN communities, speech and language provider agencies, and all school systems in the Rainy River District.

In addition, the research available on the speech and language capabilities of FN children is scant at best. There is very little evidence about the reliability and validity of formal instruments for the FN population, so it is possible that the results from standardized speech and language assessments are not accurate. As Ball emphasizes,
It is worth stressing at the outset that there is an urgent need for research on Indigenous children’s speech-language development, needs and responses to intervention. At the time of this writing there is no population-based data for characterizing the speech-language strengths or difficulties of First Nation children. (Ball, 2007, p. 49)

Unreliable results from current assessments may lead to misdiagnosis of speech and language disorders, which could also lead to misguided intervention or instruction (Toohill, McLeod, & McCormack, 2012). Even though this misdiagnosis may occur with all testing of FN children within the school years, the screening tool being scrutinized in this study is used to identify children who may be at risk for speech and language problems as they enter school. It may be sending the child on a misguided trajectory for his/her school career.

This phenomenon is witnessed globally. Currently in Australia, the vast majority of Aboriginal children are likely to receive SLP services from non-Aboriginal SLPs, and it is highly unlikely that the SLP will speak or even be familiar with the home language of the Aboriginal child being assessed (Speech Pathology Association of Australia, 2001). The Aboriginal children are likely to be administered standardized tests designed for use with Standard English speaking populations, which may yield invalid assessment results (Gould, 1999). Across the world, many children communicate within culturally and linguistically diverse contexts; however, most Western research investigating speech and language impairment has focused primarily on White, middle class, urban, English speaking children who speak the standard variety of English in their specific geographic region (Ball, Bernhardt, & Deby, 2006).

The roots of this study are grounded in both my personal and professional experience. My early life experience, growing up in Northern Ontario, has given me but an inkling of the challenges facing Northwestern Ontario FN peoples in the past and in the present. My exposure
to their values, customs, and language in addition to my professional experience continue to fuel my ongoing interest in learning more and more through deep listening, and a greater understanding of the historical roots of today’s challenges. As my personal journey continues in this regard, I realize I will never fully grasp the diverse experiences of FN Peoples and their meanings. I can only try.

The uncertainty of accurate speech and language assessment of Indigenous Peoples today is heavily influenced by the FN history of education, European colonialism, and residential schools in Canada. Helin, an Aboriginal lawyer and activist who grew up in an impoverished FN coastal community in British Columbia, speaks from experience, from his Tsimshian culture and upbringing, and his formal education in Indigenous history in his book *Dances with Dependency: Out of Poverty through Self-Reliance* (Helin, 2008). He imagines this passage of time as waves in a storm. He explains the first wave as the time prior to colonialism when the Aboriginal population was self-reliant, well organized in leadership, demonstrating collaborative teamwork and culturally and cognitively able to survive the dangers of nature within their environment. The second wave describes how the Indigenous Peoples weathered the colonial storm, and the third wave describes the impact that colonialism had on Indigenous Peoples’ language, culture, and education. Finally, the fourth wave describes a way out of the storm: an agenda for action (Helin, 2008).

According to Helin (2008), prior to European occupation, the Aboriginal peoples had survived and thrived for 9,600 years. The introduction of European influence and the subsequent exploitation of Aboriginal peoples by European settlers began to unravel the strong spiritual self-sufficiency of the people, causing a shift from interdependency to dependency. Battiste (2013) describes this similarly as the persistent and aggressive efforts to assimilate FN peoples by the
government and religious institutions throughout the past century, the marginalization of Indigenous knowledge in educational institutions, and the losses of Indigenous languages and heritages. This has taken its toll on the sustainability of Indigenous languages, culture, and traditions. This destructive focus on assimilation led to residential schools that did little to educate but much to disrupt cultural patterns and suppress language use in Indigenous communities (Kirkness, 1999).

The legacy of these practices included not only FN language loss and loss of cultural identity, but also disruption and disintegration of child socialization and parenting practices, and a lack of confidence and trust among FN peoples (Ball, 2007). According to Battiste (2010), the exclusive reliance on Eurocentric knowledge in schools has failed our FN students. *Eurocentric* refers to a tendency to interpret the world in terms of Western and especially European values and experiences, which evolved through modern scientific inquiry deeply rooted in politics of modern society (Battiste, 2013). As Battiste (2013) suggests, “Educators must recognize the Eurocentric ideologies that have shaped educational curricula, and recognize different and legitimate ways of knowing and doing that are not currently part of the educational process” (p. 115).

Battiste (2005) writes, “Indigenous knowledge is not captured in any systematic way in the Canadian educational system. In some cases, there has been a real effort to erase it” (p. 2). The Residential School era (1876 to 1996) is amply illustrated by such quotations as the following:

I want to get rid of the Indian problem. Our objective is to continue until there is not a single Indian in Canada that has not been absorbed into the body politic and there is no Indian Question and no Indian Department (Duncan Campbell Scott, Deputy
As Helin describes it,

Over the period of the colonial storm, what Europeans effectively did was create a gulf between Indigenous people and their past – a past which, over this period, became a distant world. In many ways the Aboriginal canoe was set adrift from everything that had made them unique: their deeply-ingrained traits that allowed them to survive for millennia, their languages and intricate cultural practices, and the variations of profound spirituality by which they lived their lives. (Helin, 2008, p. 98)

As a result of past and present inequalities, education, which includes assessment practices, has also taken on the European influence and mindset and lost the notion of holistic lifelong learning as the First Nations Education Council (FNEC) describes:

Traditionally, First Nations education embraces a holistic approach. This approach considers the individual as whole; encompassing the intellectual, spiritual, emotional and physical dimensions. It is an approach that develops all aspects of the human being and infers a lifelong process, from birth to deathbed. From a historical perspective, this vision of education is closely related to the necessity to adapt to changes experienced by the person, the community and the environment. Adaptation is tantamount to survival. Moreover, the whole community contributes to the education process on a daily basis. The Elders are granted a particular privileged place in the education of young ones. The coerced imposition of formal and school-centred Euro-American style of education has dramatically changed the rules of the game for First Nations. The stated aim is to *kill the Indian in the child*. Even though lifelong learning is still possible, the traditional model accessible to all and at all times in life is slowly losing ground to a formal model. (First Nations Education Council, 2010, p. 5)

This exclusive use of Eurocentric knowledge has also penetrated the standards by which diagnostic or assessment tools are used by SLPs in both the education and health sectors today. It is therefore our responsibility as service providers to work to support equity, authenticity and

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<sup>2</sup> Duncan Campbell Scott quotation from secondary source in Royal Commission on Aboriginal Peoples, Volume One, Chapter 13, “Conclusions” section I. Primary source: DCS 1920 HC Special Committee.
holistic perspectives in all aspects of assessment, intervention, and learning within education for FN children.

**Research Questions**

The current study investigates differences in performance between SK FN and NFN children on a series of test items on the FPSLST-2 and possible reasons for these differences. Platt (2010) used similar methods to compare the performance of English First Language users and English Language Learners (ELL) on the *Peabody Picture Vocabulary Test – Third Edition* and found that the DIF procedure effectively showed differences for ELL and English First Language children on particular items of this measure.

The research questions are:

1. How difficult are test items for children of either group (FN and NFN)?
2. Which test items are differentially difficult, after controlling for children’s overall performance on each subtest?
3. What features and methods of administration of the test items might account for the differential difficulty?

The following chapter clarifies the purpose of this study and the need for it through reviewing literature on the topics of FN education, culture, and language (past and present), learning styles, early learning curricula, early speech language development, and assessment.
CHAPTER TWO: LITERATURE REVIEW

There is no question that communication and language skills are foundational to literacy acquisition and success in learning in the early years. (Brock & Rankin, 2008). Law, Rush, Clegg and Peters (2011) researched the association between children’s early language development and their performance on assessments in the first years of formal schooling. They found that despite the strong influence of social class, children who were performing well at 24 months in their language skills were more likely to do well in their early years of school. Strong language skills are essential for children’s success in school and life (Hart & Risley, 2003; Heath & Hogben, 2004; Jalongo, 2008; Kalmar, 2008). Children with speech and language difficulties in their preschool years are at greater risk of reading, language, and spelling impairment in later life (Hesketh, 2004; Lewis, Freebairn, & Taylor, 2000), and there is a greater risk of future academic, social, and occupational concerns (Felsenfeld, Broen, & McGue, 1994).

If literature suggests that education is a critical link for enhancing success of all children in school and in later success in employment, and in overall health and social well-being (Mendelson, 2008; People for Education, 2012), then a critical target for enhancing student outcomes in early literacy and school success is competent speech and language skills. Being accurate in evaluating FN children’s speech and language development is critical to providing them with the tools they need to explore, inquire, and question in the early years. Communication and language skills are essential in any culture and of particular importance to FN culture due to the history of strong oral communication systems (Battiste, 2005). In any culture, oral language skills are the precursors to competent literacy, learning, and life skills.
(Kennedy et al., 2012). In addition, FN communication systems and the importance of lifelong learning strongly support the importance of children’s speech and language competency (Ontario Ministry of Children and Youth Services, 2006).

This chapter reviews the history of FN education and learning in Canada, which has influenced the assessment and measurement of FN children’s speech and language skills, which in turn has caused controversy over whether the present-day assessment tools effectively address the complexity of FN children’s speech and language development.

Research in Canada on FN children’s speech/language assessment and intervention has included literature reviews, government strategies/policies and agendas, exploratory projects, case studies, and SLP reported best practices based on focus groups, surveying key informants and ethnological methods of data collection. Very few empirical studies have been conducted to provide insight into the validity and reliability of the present-day speech and language assessment tools for FN children, and very little has been established in terms of what works effectively in determining the communicative competence of FN children. Although there is a paucity of research on the assessment of speech and language development of FN children in Canada, studies conducted globally may provide some guidance and future implications for investigations within Canada.

Aboriginal education and culture in Canada (past and present), the diverse learning and teaching styles of children and practitioners, the diversity of FNEDs in Canada, the possible worldview differences in the purpose of assessment for SLPs and FN families/communities, and Early Learning implementation in the province of Ontario have influenced the SLP profession
when it comes to effectively assessing the speech and language capabilities of FN children. The following will clarify the different roles each has played.

**Importance of First Nations Oral History and Oral Tradition**

This section on oral history and tradition is based on learning through FN partners within the Rainy River District and many conversations with N. Jones, who is a fluent Ojibwe speaker and a local Rainy River District Elder. N. Jones is a resident of Nigigoonsiminikaaning FN, a member of the Muskrat clan, and her Spirit name is Ogimaawigwanebiik, which means *the robin*. She is an essential member of the Rainy River District Best Start Network. Her role provides the membership with valuable FN perspective and traditional teachings in order for the group to better understand the language, culture, and worldview of our local FN families as the Network partners provide a variety of health, education and social services to children, birth through 6 years of age. She is very receptive to questions and has provided consent for me to share her clan’s perspective on oral traditions in this study.

As taught by N. Jones, FN peoples are traditionally storytellers. Oral traditions are historical accounts, teachings, lessons, and explanations that have been passed down from one generation to the next. FN peoples have existed historically as an oral language people, and FN oral tradition is difficult to write about appropriately or accurately since the messages get lost in translation. J. Jones (personal communication, May 18, 2014) reported, “Historically, it was taboo in FN culture to write down oral traditions; the true body of information on oral tradition is in the heads and on the lips of the people.”
J. Jones (personal communication, May 18, 2014) adds that, “within the last 20–30 years, the writing of teachings, stories, and traditions has no longer been seen as taboo, but a sign that FN groups are adapting to changing times and that Elders are reaching out to the FN youth in writing as a result of growing technology and the fact that they have little time with them due to formal schooling.” For example, N. Jones has a twitter account, #askanelder, where she fields many questions related to the District’s language, traditions and culture. J. Jones adds, “The writing of teachings and traditions is also a way to preserve the language and worldview that is held in particular FN communities since the number of Elders with this knowledge are rapidly decreasing within Canada.” (personal communication, May 18, 2014) N. Jones (personal communication, May 18, 2014) stated, “I sometimes struggle with the translation from Ojibwe to English because in Ojibwe there are three meanings in a message: literal, cultural, and intentional, and this is often difficult to convey in English. N. Jones often states that it is hard to explain even the concept of these three meanings in English.

N. Jones explains that oral tradition is very important to the survival of the culture and traditions of the FN peoples of Canada. Stories include elements of kinship, identity, a sense of belonging, and responsibility. Passing on oral traditions is a responsibility. There is an understanding among FN peoples that they will give back by passing these stories on, thus keeping the stories and culture alive. Traditionally, the predominant way FN peoples know about their past is by what they have been told; however J. Jones reports that very important spiritual ceremonies were written on birch bark scrolls to preserve the accuracy of the spiritual ritual.

Oral traditions have been described as the FN way of teaching and comprise most of the historical records of the culture. Both N. Jones and J. Jones contend that accepting the value of
native oral tradition is necessary because oral traditions are not merely stories but are often true historical accounts and therefore need to be respected as such. N. Jones reports that there are many elements of oral tradition that are similar across FN communities in the Rainy River District; these include:

1. Storytelling or the telling of legends is done during the winter months, when there is more time to relax, absorb teachings, and when plants are not growing.
2. Stories can be a possession and “belong” to a storyteller. As such, they are passed down, but not everyone who hears a story has the privilege to retell it.
3. Audiences are often privileged and may be carefully selected; thus the reason for the belief that it is not appropriate to the culture’s traditions to have these stories written. The storyteller has chosen to “give” his/her story to the listener for personal reasons.
4. Oral traditions often feature elements of nature whereby respect for the natural environment and a highlighted sense of humanity are taught.
5. Stories are used as tools to foster good discipline, listening skills, and responsible behaviour, particularly in the young.
6. Often stories stress a moral lesson that is to be applied to everyday life.

FN people in N. Jones’s clan are taught as children to be active listeners as opposed to being taught to actively participate in discussions. She explains this concept by providing an example of the cradle board teaching, where an infant at birth is strapped tightly in a tikinaagan so that he/she can be taught to observe and listen right from infancy. An additional local informant recalls, “One of my first memories was being hung from a tree branch in a tikinaagan while my mother, grandmother and aunties picked blueberries” (S. Tuesday, personal
communication, May 18, 2014). N. Jones shared that traditionally FN children are taught to observe and understand a situation before actively participating and that listening is more important than questioning. Most traditional teachings are passed on to children by having them watch and listen. According to N. Jones, her people are active listeners and, often, they know or think things but do not say them. N. Jones (personal communication, May 18, 2014) reflects, “There is an idea that it is impossible to listen with an open mouth.”

**Importance of First Nations Language**

Language is a uniquely human gift and a remarkable window into a culture. When a speaker learns a language, he or she also learns a distinct view of the world. The loss of an ancestral or heritage language also causes a subsequent disconnection from the related culture. A child’s sense of personal identity may not encompass this culture as fully as when the associated language is nurtured or retained.

The Assembly of First Nations emphasizes the importance of Indigenous language through the following words: “Language is our unique relationship to the Creator, our attitudes, beliefs, values and fundamental notions of what is truth. Our Languages are the cornerstone of who we are as a people. Without our Languages, our cultures cannot survive” (Assembly of First Nations, 1990).

Jourdain describes his tribal language as follows:

This is our language. It is the sound of the waves crashing on the shore, the sound of the wind in the pines, the rustle of the leaves in autumn. It is the sounds of the birds singing in the forest and the wolves howling in the distance. This is our language, from which we obtain life, our means of knowing who we are, this sacred gift, bestowed upon us by our
creator. (G. Jourdain, Lac La Croix First Nations, Ontario, as cited in Treuer, 2012, p. 79)

Treuer, Executive Director of the American Indian Resource Center in Northern Minnesota, speaks of the importance of tribal languages to FN peoples:

Indian people value their languages for many reasons. They are cornerstones of identity, and their use keeps us recognizable to our ancestors. They are defining features of nationhood. The retention of tribal languages tells the world that we have not been assimilated, in spite of the five hundred years of concerted effort to achieve that. They are the only customary languages for ceremonies, a gateway to spiritual understanding. And tribal languages encapsulate unique tribal worldviews. They define us as distinct peoples. (Treuer, 2012, p. 81)

Based on the above statements, the languages spoken by FN peoples are the foundation on which they live their lives, perform their ceremonies, pass on their traditions, and, most important, allow connection with the spirit world and the Creator. As N. Jones had stated, the language of her clan cannot always be translated into English and, in attempts at translation, the message may lose its meaning. In the present, J. Jones speaks of the Ojibwe language continually creating new words that reflect Western culture simply by adding affixes to existing words; however the literal and intentional meaning is not always captured simply by altering the morphology of Ojibwe words.

The FN languages spoken at home greatly impact the children’s ability to understand, express, and write “Standard English” which is the language of assessment and instruction in a typical Ontario and RRDSB classroom (Peltier, 2011b). Ball et al. (2006) argue that

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3 Lac La Croix is one of the 10 FN communities in the Rainy River District.
students speaking nonstandard English perform less well in school without specialized support. And this specialized support is in the form of English Language Learning programming (implemented by educators) which is not targeting the goal that FN children and families are working towards: the desire to speak both Standard English and their FNED.

Even though most children in this study are FNED speakers, the impact is just as great as if they were native Ojibwe speakers as Treuer (2012) suggests: Language is not only the method of exchanging ideas in the FN culture, it holds the key to worldview perspective and is the link to the spirit world and the Creator. The FN children who speak the Ojibwe language or have an FNED will struggle with the method and content in which speech and language assessments are administered based on Ball et al.’s (2006) conclusions. They found through extensive literature review and forum information gathering that the norms of most currently available tests are based primarily on responses from speakers of the standard American English dialect. Specifically, the norms do not apply to speakers of nonstandard dialects or other languages. The testing materials and assessment process may also be unfamiliar and uncomfortable for a child from a non-mainstream cultural group, resulting in low performance.

Most testing tools used by SLPs are rigid in their administration and scoring and assess the child’s skills and abilities in the Standard form of English. Many SLPs lack the understanding of the language or FNED, culture, and worldview of the FN children they assess and consequently may misdiagnose a speech and/or language disorder based on data that misrepresent the abilities of the children (Gould, 2008a).
First Nations English Dialects

The 2011 Canadian census of population which recorded more than 60 Aboriginal languages grouped in 12 distinct language families is an indication of the diversity of Aboriginal languages in Canada. Ojibwe is among the most frequently reported Aboriginal language spoken, with Ontario having the largest proportion of Ojibwe speakers: 46.3% of Ontario’s Aboriginal speakers are Ojibwe speakers (Statistics Canada, 2011). Ojibwe is part of the larger family group called the Algonquin language commonly known as Anishinaabemowin. Adding to that diversity, there are a number of FNEDs that have been derived from these Aboriginal languages.

English-based languages spoken by Aboriginal peoples globally developed from contact between an ancestral language and English in geographically isolated communities with infrequent interactions with speakers of Standard English (Wawrykow, 2011). The first varieties of nonstandard English dialects (pidgins) developed as contact languages when Aboriginal people began utilizing English without formal instruction and applied rules and patterns of their ancestral languages (Ball et al., 2006). As new generations spoke the pidgins as their first language, creoles developed, resulting in language patterns becoming more consistent and regular (Sandefur, 1985). Over generations and with continued contact with English speakers, these creoles became increasingly similar to Standard English (Wawrykow, 2011).

According to Wawrykow (2011), the residential school era from 1892 to 1996 in Canada forced removal of FN children from their homes, and children from diverse FN language and cultural backgrounds were grouped together. Children were punished for speaking their native language, practicing their native customs and traditions but, because of this, the development of many FNEDs were solidified because of the language restrictions imposed (Wawrykow, 2011).
Canadian FNED research describing features, characteristics, discourse (see Appendix E – glossary), and phonology is limited, and most researchers have used ethnography or the study of the language in use to provide these descriptions (Heit & Blair, 1993; Mulder, 1982). There are excellent examples of focus group research, exploratory investigations, and experienced SLPs’ insights and observations of the FN population they serve that provide detailed descriptions of Canadian FNEDs’ characteristics and implications for the practice of speech language pathology.

Wawrykow (2011) recounts that, in her professional practice of 20 years in British Columbia, her FN students tended to confuse pronouns, delete inflectional endings for tense (e.g., deleting -ed for past tense), delete copula or auxiliary verbs (e.g., delete the is in He is running), and use conjunctions and wh-questions infrequently. In terms of cultural differences, she found that longer response times were common among her FN students, and reduced eye gaze was observed when asked a question. One of her students reported that the lack of eye gaze and longer response time helped him block out visual distractions and allowed him to visualize and think about his ideas as he formulated an answer.

Peltier (2011b) found similar types of FNED differences. In addition, her FN students tended to use “there” or “here” for prepositional phrases. (e.g., Put your coffee there for Put your coffee on the table). She recommends blending Western-based and Annishinaabe perspectives and uses a strength-based approach rather than a needs-based model for assessment and intervention which, in Peltier’s opinion, is closer to the worldview and upbringing of her FN students.
Peltier (2011a) surveyed Canadian SLPs to determine the types of speech and language assessment tools used to evaluate FN children. She found that there was no consensus within the profession in terms of an effective measure and that SLPs struggled as she did in getting an accurate profile of FN children’s communicative competence with the standardized tools available today.

Ball et al. (2006) explored the diversity of FNED through a review of the literature on dialects and two focus groups held in Vancouver, B.C. The key informants were FN community members, SLPs who work or do research with FN communities, developmentalists with interests in language development and education of children from FNs, and linguists with an interest in FN languages and sociolinguistics. Critical information was recommended from the literature review and the focus groups:

1. More research is needed to define the diverse nonstandard dialects in Canada so that this information can be passed on to SLPs for use when providing services to FN children and families.

2. SLPs need additional training prior to the assessment and intervention of people speaking a dialect other than Standard English.

3. The most successful early intervention programs are based on a partnership with FN communities and families to gain insight into community perspectives and families’ philosophy on child development.

4. Current speech and language testing using norm-referenced tests measures only the child’s proficiency in Standard English in the context of a formal testing protocol with content that may be unfamiliar to the FN child.
5. Assessment in naturalistic interactions has the potential to provide information on the child’s language proficiency in any language or dialect. Observational assessment during play is an example of this method. The dynamic assessment approach (cyclical assessment over time allowing for scaffolding and re-assessing) rather than the static approach (one snapshot in time) also allows for more valuable information about a child’s needs and strengths.

6. The assessment and intervention of speech and language skills need to target FN children’s skills in an authentic environment which can only be informed by involving the family and extended family in the development of their child’s program.

Both observational assessment and dynamic assessment will be further explored in later sections of the literature review.

Currently, FNEDs are spoken not only among FN peoples who speak their ancestral language but also people who no longer speak their ancestral tongue (Mulder, 1982). Peltier (2009) suggests that because many of the ancestral languages are being lost at an alarming rate, FNEDs should be seen as important remnants to the sacred languages.

FNED is often evident in the home and community conversations of FN peoples, whether they reside on a First Nation territory or in a rural or urban setting. Regional varieties of FNEDs share common linguistic features (pronunciation, grammar, and vocabulary), discourse, and pragmatic rules (Ball & Bernhardt, 2008). Each community has a unique, nonstandard variety of English that holds a central place in social discourse and is critical to supporting the individual’s identity and ties to a distinct FN community (Peltier, 2011a). Because the FNEDs are so unique
and diverse and are derived from a community’s culture and history, practitioners need to approach this nonstandard version of English with respect, because not doing so devalues the culture and history it came from and may ultimately undermine the practitioner’s attempts to teach Standard English (Peltier, 2011a).

A number of scholars in the fields of linguistics and education have documented the features and rules of American Indian English and Australian Aboriginal English (Butcher, 2008; Malcolm, 2013; Sharifian, 2006). Information about different speaking styles, functions of language, dialects, components of phonetics, phonology, morphology and syntax, and discourse is discussed in the literature in Canada as seen in the above studies; however it is important to reiterate that few of these reports are derived from empirical research, with most being accounts from practitioners.

Peltier (2011b) says that the use of Standard English pronunciation, grammar, and discourse rules is critical for school and professional success. Historically, students who use FNEDs have been stigmatized as using a lesser form of Standard English and misunderstood as learners within the educational system (Sharifian, 2008). Young FN children are socialized to use FNED speech and language and discourse patterns within the context of home and community before they enter school. In school, their communication has been judged to be delayed or deficient by teachers and specialists such as speech-language pathologists, resulting in over-identification of FN students being placed in special education programs (Gould, 1999). Increased understanding and acknowledgement of FNED in the schools now supports the need for curricula about cultural and linguistic diversity (Ministerial Council for Education, Early Child Development and Youth Affairs, 2010), encouragement of code switching (O’Shannessy,
2012), the acquisition of Standard English as a second dialect and the importance of maintaining
the students’ FNED and ancestral language (Cummins et al., 2006; Fadden & LaFrance, 2010;
As Kinew reminds his FN students in order to ensure a sense of belonging, safety and comfort in
both worlds, “We must wear a moccasin on one foot and a sneaker on the other” (W. Kinew,
personal communication, January 14, 2013).

This understanding and acknowledgement of FNED in the schools is especially important
when assessing FN children’s speech and language skills because the same over-identification is
taking place, resulting in rising caseloads of school SLPs and, more important, in FN students
being treated for speech or language deficiencies that do not warrant intervention (Ball & Lewis,
2006; Ball & Peltier, 2011; Gould, 2008a).

**Education Provided to First Nations Children in Canada**

The education system in Canada today is not working for many Aboriginal children
(Antoine, 2000; Ball, 2008). In the report, *With Our Best Future in Mind* (2009), Pascal, Special
Advisor to the Premier on Early Learning, cautions that making assumptions about FN peoples
and their children without understanding the colonial and residential school history and present
culture and language of FN communities leads some NFN educators to make false assumptions
about the learning capacity of an entire community. He further suggests that there needs to be a
fundamental shift in pedagogy and curriculum at the Ministry of Education level, the school
level, and the classroom level.

More recent education policy has seen a shift towards self-management in education,
resulting in an increasing number of schools on Indigenous land and controlled by Indigenous
communities (Kay-Raining Bird, 2011). This shift is evident in both the FN preschool (early childhood programs) and school-age populations. Ball notes that in 2010, with federal investments in FN early childhood education, more than 462 sites have been supported, which translates to 8,538 children receiving child care. She adds, Aboriginal Head Start programs on and off reserve in Canada are some of the most respected Indigenous programs which incorporate holistic, culturally appropriate, and collaborative community programming; however, only 28% of FN children are served by Aboriginal Head Start programs, and there are very few available in Inuit communities. More work is needed to fully realize the effectiveness of these programs, and further work is needed to provide the “cultural safety” that Ball speaks of in order for FN families to feel comfortable accessing these and other programs like them (Ball & Peltier, 2011).

Immersion programming holds great promise for Aboriginal communities that are seeking to take ownership of their schools and create culturally appropriate, relevant, meaningful education experiences for their children (Bougie, Wright & Taylor, 2003; DeJong, 1998; Louis & Taylor, 2001; Wright & Taylor, 1995). Morcom (2009) adds although it cannot fix social problems that some communities face and can be hampered by problems that may already exist in schools and school boards, in the majority of cases, immersion is extremely useful for bringing communities together and strengthening ties between members and generations. That is particularly the case when communities give input into the design and delivery of immersion programming and when parents, elders and knowledge keepers, and other community members participate in the classroom. When that happens, students’ personal and collective self-esteem go up (Morcom, 2009). Students in immersion programming are also much more likely to become proficient in their heritage/ancestral language, particularly when the language is no longer widely
spoken in the community and school is the only access (McCarty, 2003; Morcom, 2009; Pease-Pretty On Top, 2004).

The First Nations Languages Immersion Program project in Onion Lake First Nation in Saskatchewan is a prime example of the rationale, prerequisites and curriculum that should be followed when implementing an immersion program. MacDonald eloquently explains the project’s philosophy (Onion Lake Education, 2005)

The Onion Lake Gift of Language Project reflects the values and beliefs of the Cree worldview.

We believe that children should grow respecting Mother Earth, with knowledge to respect themselves and others, with an ability to take care of themselves, knowing their individual skills and talents, able to relate to those around them and take pride in who they are and where they come from. (Onion Lake Education, 2005, p. 8)

McCarty adds,

Immersion schooling can serve the dual role of promoting students’ school success and revitalizing endangered Indigenous languages. And, given the gravity of the current state of language loss, anything less than full immersion is likely to be too little, too late. (McCarty, 2003, p. 159)

While more research needs to be done on the academic advantages of Aboriginal immersion programs, students who participate in them tend to do well academically as well as behaviorally (Johnson & Wilson, 2005), and teaching and participation in culture and language instruction positively correlates with Native student retention rates (Pease-Pretty On Top, 2004).

The history of lost languages, culture, and identity has contributed to FN peoples experiencing higher levels of poverty, chronic illnesses, and unemployment compared to the general Canadian population (Brady, 1995). Because the education system today continues to reflect Eurocentric values and knowledge and the FN traditional education is far from being fully
integrated into that system, many FN children do not identify themselves in the learning curriculum and struggle to cope not only with the school setting but also where they are required to live off-reserve for education, with being away from home. Again, this lack of a sense of belonging may add to the reasons for early school dropout (Michaelis, 2011). Antoine (2000) and Wilson and Battiste (2011) suggest that educational successes occur for Aboriginal students where Aboriginal languages, heritages, and communities are respected, supported, and connected to elders.

Differences in education which eventually influence knowledge and skills of children living on and off reserve are somewhat documented in the literature. In 2010, there were more than 515 FN elementary and secondary schools available to approximately 109,000 FN students resident on reserve lands. Over 64% of these students attended 515 on-reserve schools operated by FN: The majority, (75%) were enrolled in either kindergarten or an elementary school, while 25% were enrolled in an on-reserve secondary school. Approximately 31% of FN students attended off-reserve provincial schools, and 5% attended either a private or federal school. Secondary school data (2004-2009) identifies the rate of FN graduation at approximately 36% compared to the Canadian graduation rate of 72%. Sixty-one percent of FN young adults (20-24) have not completed high school, compared with 13% of non-Aboriginal people in Canada.

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4 Aboriginal Affairs and Northern Development Canada (AANDC), Nominal Roll, 2010-11.  
5 AANDC, Nominal Roll, 2010-11.  
6 AANDC, Nominal Roll, 2010-11.  
A 2004 study from Indian and Northern Affairs Canada reported that on-reserve FN children were at least two years behind NFN children in any given grade according to the Community Well Being Index (Indian and Northern Affairs, 2004).

Mendelson from the Caledon Institute of Social Policy provided a review of FN reserve schools in his report, *Improving Education on Reserves: A First Nations Education Authority Act*, released in the summer of 2008:

The present non-system of education for First Nations children living on reserves is failing, and the overall results for Canada show no improvement over the last decade. It is difficult to think of another issue that is so clearly a social and economic disaster in the making (Mendelson, 2008, p. 19).

In addition to the published research and reports regarding FN education on and off reserve, voices from the field can paint a grassroots viewpoint of education and learning experiences off-reserve for FN peoples and their families. Education is often the motivating factor for moving. Influential factors stated in Michaelis’ 2011 article in *Your Voice* magazine provides a perspective of today’s perceptions of Northern Ontario FN professionals, students, and families:

So, many families either send their children away, or move the entire family, to the nearest urban centre to have access to better schools. This presents a whole host of new issues for these families as they try to forge a new life. Whether children get sent alone to the city school (and live with relatives or foster parents), or the whole family moves, there can sometimes be issues like extreme poverty, violence, neglect, addiction and poor health that need addressing in order for kids to be successful in school. But getting help can be frustrating. Navigating the system is hard for everyone but it can be especially daunting when you do not even know what is available to you. If you come from a reserve and you haven’t caught buses and you haven’t made doctors’ appointments and you haven’t played within the system, you don’t know how to get that help for yourself. Another issue for families is the overwhelming differences between living on-reserve and living off-reserve. It can lead to culture shock and work to deepen the divide between First Nations and Non-First Nations people. (Michaelis, 2011, pp. 1–2)
Michaelis (2011) speaks of navigating the health and education systems off reserve as daunting. The Ontario government has realized the Speech and Language Service System is one of the most confusing health care provider services for parents and families to navigate and has made it a priority and an integral part of the early years services in the *Ontario Early Years Policy Framework* document (2013) with the goal of simplifying access. The document states:

Currently, speech and language services are provided to children and youth through five different programs run by three different ministries. We have heard from parents and professionals that these services are fragmented, there are waitlists for both assessment and intervention services, and there are difficult transitions between community and school-based services. As a result, the three ministries responsible launched a number of demonstration sites that will identify strengths, challenges, lessons learned, effective practices and emerging considerations, which will help to improve the delivery of speech and language services across the province. (Ontario Ministry of Children and Youth Services, 2013, p. 17)

The Regulated Health Professions, SLPs in particular, are integral members of the school team when it comes to developing education plans for struggling students. The process of speech and language assessment and intervention planning has also taken on the Eurocentric view of knowledge and skill acquisition; hence most of the assessment tools and intervention strategies used are not validated on the FN populations and, as a result, uncertainty exists as to their effectiveness as measures of FN children’s skills, as Peltier (2011a) found after surveying Canadian SLPs.

The methods of assessment and intervention by SLPs are heavily influenced by Eurocentric philosophy of learning and skill acquisition (CASLPA, 2010). Just as educators have recognized the shortcomings of their assessment tools and instructional strategies when working with FN students, so too have the SLPs working in education lost confidence in their standardized tests when it comes to providing an accurate assessment of the speech and language
skills of FN students (Peltier, 2011a). Having the relevant cultural/linguistic training and understanding of the specific FN communities served and acknowledging the potential positive effect of integrating that FN culture and language into the curriculum is also best practice when determining the speech and language programming needs of an FN child (Antoine, 2000; Ball & Pence, 2006; Kanu, 2002; Peltier, 2011b). For example, targeting sentence structure goals in the context of retelling a story that has FN cultural content and vocabulary or enlisting an Elder to tell a legend to an entire class, which can later be discussed in intervention, could be authentic and meaningful activities. In providing speech and language services in this manner, the FN child would be more familiar with the content because he/she would see himself/herself in the learning and possibly be more engaged in the activity.

The need to focus on FN culturally appropriate education curricula is important, but this focus must begin even before school, in the early stages of development when a sense of identity begins to emerge (Nguygen, 2011).

Aboriginal and First Nations Curricula

There are a number of Aboriginal Early Learning programs developing throughout Ontario and Canada, but the most documented in the literature is the Aboriginal Head Start program. The Aboriginal Head Start (AHS) program was a 1995 federal government initiative implemented to enhance child development and school readiness for FN, Métis, and Inuit children. As noted by the Royal Commission on Aboriginal Peoples (RCAP), research has supported the critical importance of infancy and early childhood as a foundation upon which identity, self-worth, and intellectual strength are built (RCAP, 1996). The program was originally provided for off-reserve FN, Métis, and Inuit families in urban communities and large
northern regions; however, it was later expanded in 1998 to include on-reserve communities (Indian and Northern Affairs Canada, 2005).

AHS sites, as specified in the program’s principles and guidelines, are managed by Aboriginal nonprofit organizations and directly support the parent/caregiver in his/her role as the natural advocate and teacher of the child. According to AHS, “Parents, extended family and community members are directly involved and play a significant role in the design, implementation and management of local projects” (Indian and Northern Affairs Canada, 2005, p. 3). This program is intended to help FN, Métis, and Inuit Canadians work towards their goals of language and cultural preservation which incorporate the holistic way of learning that is so important to the engagement of Indigenous children.

Mihichuk, the AHS Coordinator in Fort Frances, Ontario, an urban (off-reserve) site, explained the program as follows.

The AHS program is a school readiness program that focuses on children 2 1/2 to 5 years of age. The curriculum focuses on six core components of our program: Education, Culture and Language, Nutrition, Health, Social Supports and Parental Involvement. Our program not only gives the children the skills to move forward into school but also gives the parents the skills to become school ready for their children (i.e. getting them up, fed, dressed and to the bus on time) and helps to build up the parent’s confidence to become involved in their child's learning. Parental involvement is a huge component of our program, we believe that parents are the children's first teacher and we welcome parents to participate in the classroom, in our community kitchen, traditional parenting classes and traditional craft classes. (A. Mihichuk, personal communication, January 18, 2012)

Nguyen (2011) claims that the AHS programs in Canada are making significant strides to close the education gap between Aboriginal and non-Aboriginal youth. Using the AHS program as a case study, Nguyen states that the Department of Indian and Northern Affairs Canada
conducted local evaluations by parents, kindergarten teachers, and community members which showed significant gains in all areas of children’s development, improved family relationships, and the development of parenting skills (Indian and Northern Affairs Canada, 2005). Though empirical data relating to the program’s success through children’s outcomes are limited, there is some evidence that positive impacts are being made through the AHS programs.

The Aboriginal Head Start in Urban and Northern Communities (AHSUNC) school readiness study was conducted by the Public Health Agency of Canada to examine the impact of the program on school readiness skills. It focused on three key areas: language, motor, and academic skills. The skills of children 3 to 5 years of age were assessed by AHSUNC teachers in the fall of 2010 and again in the spring 2011. Over 100 AHSUNC program sites across Canada participated, with 1,310 children included in the study. The children were measured with the Brigance Head Start Screen (BHSS), which is designed to measure the three key areas mentioned above. The screen asks a number of questions of the children that require either a verbal or written response. Different versions of the screen were administered to 3-, 4-, and 5-year-old children based on developmental skill levels. Some adaptations were made to the BHSS to account for cultural content (e.g., the word canoe was an acceptable label for a picture of a boat). All age groups improved significantly over the course of the year in all three areas: language, motor, and academic skills. Specifically, children with and without special needs showed significant improvement, children who started at the lowest levels in school readiness made substantial progress, and girls scored slightly higher than boys pre- and post-testing; however both genders progressed significantly over the course of the year. To ensure that this positive impact was due to the AHSUNC programming and not simply maturation, two comparisons were made: Participants’ scores were compared to standard scores for children of
their age, and the scores of new AHSUNC participants at the start of the school year were compared to those of returning AHSUNC participants. These comparisons provided evidence that the AHSUNC program is having an impact on school readiness of its participants (Public Health Agency of Canada, 2012).

The *Ontario First Nations, Metis, and Inuit Education Policy Framework* (Ontario Ministry of Education, 2007) which guides the integration of FN, Métis, and Inuit culture and language into the public school curriculum in Ontario is supported by the following principles: excellence and accountability, equity and respect for diversity, inclusiveness, cooperation, and shared responsibility, and respect for constitutional and treaty rights. According to Cherubini’s (2010) analysis, the 2007 framework recognizes that Aboriginal students’ learning is enhanced by culturally sensitive teaching practices and varied assessment and evaluation opportunities. Yet, as Cherubini points out, the framework also states that the ultimate measure of student learning for Aboriginal students would be assessment that quantifies knowledge acquisition and intellectual development by criterion and norm-referenced standardized test scores, namely, mandatory Education Quality and Accountability Office testing in grades 3 and 6 and the grade 10 Ontario Literacy Test. In essence, this method of evaluation is a contradiction to the principles set out in the framework; namely, that there will be “varied assessment and evaluation opportunities” (Ontario Ministry of Education, 2007).

Applying the impact of Aboriginal and FN curricula, the most valuable contribution to the speech language pathology profession is the philosophy and guidelines implemented in the AHS and the FN language immersion programs. The six program components of Aboriginal culture and language, education and school readiness, health promotion, nutrition, social support, and parental involvement embody a well-rounded holistic approach that recognizes parents and
caregivers as the child’s primary teacher. Both the SLP profession and the Early Learning Program in Ontario schools may benefit from the AHS principles of incorporating FN culture and language into their programs and engaging FN families and communities to participate and assist practitioners in the integration of these components into the daily activities of the classroom and the therapy room.

Similarly, the principles of immersion programming in education may provide some insight into the ways in which an SLP can provide services to an FN child speaking two languages: FNED and Standard English. This would encourage the families or caregivers of FN children to fully participate in the assessment and intervention process: Their participation would be essential in order for the two languages to flourish.

**Influence of First Nations Learning Styles or Learning Preferences**

Pashler et al. (2009) studied whether the current practices of educators using learning styles inventories or tests for the purpose of differentiating instruction and creating better student engagement is supported by scientific evidence. A review of the learning styles literature revealed that there was no evidence for validating the use of learning style assessment in an instructional setting and furthermore, several studies that used the appropriate type of research design found results that contradict the most widely held version of the learning-styles hypothesis: the meshing hypothesis, which states that an alignment between instruction and learning style will produce optimal learning outcomes.

Some research has suggested that the understanding of Aboriginal approaches to learning increases FN students’ chances of success (Aikenhead, 1997). For example, researchers have observed that many FN students prefer cooperative rather than competitive learning (Allen &
Crawley, 1998) and that many learn through imitation, observation, and trial and error rather than direct instruction (Guider, 1991). This is of particular interest to SLPs in their practice because they often have the opportunity to work with children one on one and in small groups, which allows for the practitioner to keenly recognize how a child best takes in information, processes it (and speed at which it is processed), and formulates a response. The Canadian Speech Language Pathology professional standards recognize the need to educate and recognize culturally diverse populations (CASLPA, 2010); however it may be necessary to modify intervention paradigms to incorporate alternate strategies and styles of learning for all children regardless of their cultural background (Terrell & Hale, 1992).

In other words, an SLP who is familiar with a child’s thinking and most successful learning style may be an asset in choosing assessment methods (possibly a combination of standard and nonstandard measures), intervention strategies, developmentally appropriate activities, and prompts that engage and challenge the child.

Toulouse (2008a) identifies four learning styles that honour the FN worldview: holistic, visual, reflective, and collaborative. In the Ontario Literacy and Numeracy Secretariat (LNS) monograph, “Integrating First Nations Teaching and Values in the Classroom,” Toulouse says that FN children who demonstrate a strong visual-spatial learning style prefer using images, pictures, colours, and maps to organize information and communicate with others. For example, they may love to draw, scribble, doodle, and work with their hands. Toulouse adds that, for these children, it is recommended that the teacher demonstrate what and how to do something rather than using the typical direct instruction which includes very little modeling. Because the current system of education can often have a very narrow view of learning and assessment, namely the auditory/verbal method, there are FN groups beginning to create their own measures.
As education systems across Canada struggle to meet the needs of First Nations students, many First Nations groups have expressed their desire to create their own measures of progress and success in learning and education, rather than being held to standards to which they do not necessarily ascribe. One size does not fit all; there are many kinds of learners, many kinds of learning, and many ways of demonstrating accomplishments. Without better research and data, we don’t know where we are, where we want to go, and if we’re getting there. (Society for the Advancement of Excellence in Education, 2005, p. 31)

Morton, Allen, and Williams (1994) used the *Wechsler Intelligence Scale for Children* to test differences in language and non-language tasks with Native American (Ojibwe) and non-Native American adolescents. They found that students in the Native American sample performed better on subtests linked with visual/spatial processing and that the control group did better on the verbal subtests.

Bell (2004) examined case studies from 10 schools in British Columbia, Alberta, Saskatchewan, Manitoba, and the Yukon in the 2003/2004 school year. The 10 schools had diverse environments ranging from urban centers to isolated rural FN communities. The researcher spent 12 days per site and conducted over 120 interviews as well as 37 focus groups of teachers, students, parents, and elders in the data collection process. Data from the interviews and focus groups were triangulated with documents reviewed and in-class observations of teachers and students, and the researchers developed common patterns to determine what was most effective in teaching and assessing FN children. Some of Bell’s recommendations for schools that are of particular interest to the study in this thesis include holding high expectations for FN student achievement, using diverse measurement tools to assess and monitor progress, using all data sources (including nonstandard and standardized assessments) to develop intervention and improvement plans and, finally, capitalizing on the expertise of practitioners who have been successful and effective in working with FN learners.
Kanu (2002) was determined to find out whether aspects of culture influenced the learning of FN students from an inner-city high school in Winnipeg, Manitoba. Kanu employed multiple data collection methods including classroom observations, research conversations with students regarding data collected in the classroom, and students’ journals, hoping to provide recommendations to preservice educator classes to prepare them for successful practice with FN students. Data were collected between April and June 2000 in an integrated grade 9 social studies classroom with 80% Aboriginal students and with teachers who had been identified as successful teachers of Aboriginal students. Recurring themes related to cultural influences on FN students’ learning included learning through stories, learning through observation and imitation, learning through community support, and learning through visual sensory modes.

The Ontario Literacy and Numeracy Secretariat monograph written by Toulouse (2008a) and the studies by Kanu (2002) and Bell (2004) do not necessarily claim that FN students learn solely through a single modality (auditory, visual). Instead, they suggest that it is important to consult with FN learners themselves, with successful educators who have been teaching FN students, with parents, and with Elders to determine what works in their practice and in their communities when it comes to teaching, learning, and assessment of FN children.

Even though many of the above researchers have claimed that many FN children either prefer or have a tendency to have a particular learning style, namely the visual-spatial style, many more researchers have cautioned against relying on a specific preference and its implications.

The first thing to say is that there is no gene, or set of genes, which define culturally- or racially-based learning styles. Ways of learning are derived from ways of life and how adults and other people, including peers, in the immediate context teach. These ways of learning develop through a complex interaction
between experiences, habits and formal instruction. Some cultural differences may occur in this regard which you should consider, but they cannot be assumed. Culture is shaped by a multitude of circumstances and influences. (What Works: The Work Program, 2014)

In Australia, the Aboriginal Ways of Learning Project (Hughes et al., 2004) grew out of the search for best practice in teaching Aboriginal students. The research suggested that there were patterns in the strengths that Aboriginal students showed in learning and that their culture had a strong influence on these patterns; however they concluded that there was not just one set of strengths for all Aboriginal students, just as there is not just one Aboriginal culture.

Similarly, Chrisjohn and Peters (1989) challenged the notion of the “right-brained Indian” (p. 1), stating that “there is no anatomical evidence that supports the notion that White and non-White individuals have different brain configurations and, secondly, developing a curriculum based on only right brain functionality would seriously compromise education for American Indians” (p. 1). They attribute the promotion of right hemisphere thinking in education as a fad that often portrays the Aboriginal student as intellectually inferior.

The notion of right and left brain differences has also been used to interpret standardized intelligence tests. Brown (1984) found that her sample of Native American children showed better scores on performance tasks than verbal tasks on the *Wechsler Intelligence Scale for Children* (WISC). Further interpretation by investigators determined that since performance suggests right hemisphere function and verbal suggests left hemisphere function, then they could attribute these findings to support right hemisphere dominance for Native Americans (Brown, 1984; McShane, 1980). Making a claim such as this may be misinterpreting the results because the WISC is only one type of assessment that is derived from a Eurocentric model of skill evaluation. More evidence may be necessary to make this claim; making an inference and/or
conclusion based on one of the many functions of the left and right hemispheres may be over generalizing the results. Other factors may have contributed to the scoring differences in verbal and performance tasks.

Joy and Kolb (2009) examined the role that culture plays in the way individuals learn, using the *Kolb Learning Style Inventory*. This inventory is a computerized assessment which allows students to discover their learning style and also provides information on how educators can use this information to best serve students as well as possible strategies for accommodating different learning styles. Basically, it determines whether the student learns through concrete experience, reflective observation, abstract conceptualization, or active experimentation. In reality, Kolb suggests that people use all four methods of learning depending on the type of experience presented and the learning environment. Based on 533 respondents residing in seven countries, they found that only the preference for abstract conceptualization (creating theories to explain observations) could be explained by cultural influences; however the preference for active experimentation (using theories to solve problems and make decisions) over reflective observation (watching others or developing observations about their own experience) was only minimally impacted by culture. This study does not include FN participants; however the *Kolb Learning Style Inventory* is the assessment of choice in this type of research, and it may be valuable to determine if learning style is culturally influenced within FN and NFN groups in Canada or, at a more local level, in the Rainy River District.

Based on the body of research regarding overall learning styles and those preferred to be used by FN students, caution should be taken not to overgeneralize the preference or predominance argument to all members of Indigenous populations since it may lead to inaccurate labeling and stereotyping of the FN learner. Swisher (1991) says such overgeneralizing can
contribute to “stereotypic notions about the relationship between learning style and cultural group membership; discriminatory practice, for example, inappropriate groupings or inappropriate excuses for failure in teaching and learning” (p. 4).

While there is no evidence for a single consistent Aboriginal learning style, the above research confirms that there are some recurrent patterns that are more common between FN children, just as there are recurrent patterns preferred by NFN children. In addition, it is worth noting that there is a wide variation amongst individuals in any cultural or ethnic group. Making this relevant in the field of speech language pathology, as stated earlier in this section, an SLP who can informally determine a child’s thinking, processing, theory generation, or learning style, no matter what his/her ethnicity or culture, may be better able to serve the child in the assessment and intervention process.

Taking into account the conflicting evidence relating to learning styles or preferences, the teachers’ role should be to facilitate the learning process of all children, to unlock each child’s potential, possibly by integrating their teaching styles with children’s learning styles (Swisher, 1991). The best way for teachers to help all students do this is to come to know them as individual learners in their cultural context (Swisher & Deyhle, 1989). The difference between a child’s performance and his/her achievement when guided by an adult or in collaboration with a more experienced peer reflects the child’s developmental potential referred to by Vygotsky (1978) as the “zone of proximal development” (commonly, ZPD). Identifying individual students’ learning strengths and engaging them within the “zone of proximal development” (Vygotsky, 1978) can be seen as important to FN students’ academic and communicative competence success, just as it is for all students (Epstein, 2007).
The term “dynamic assessment” includes a range of methods and materials to assess this potential for learning over time, rather than a static level of achievement (one snapshot in time) assessed by conventional standardized tests. The aim is to reveal an individual’s maximum performance by teaching or scaffolding within the assessment and evaluating the enhanced performance that results (Tzuriel, 2001). Only a few published reports on this method of assessment are available in speech language pathology. Dynamic assessment as it relates to education as well as speech language pathology will be discussed in detail in the following sections.

Early Learning Program and Curriculum in Ontario

Because this study focuses on the speech and language development of early learners, specifically SK children, it is important to understand current curriculum of both Early Learning in Ontario schools and preschool FN programs. The FPSLST-2 is an assessment tool designed to screen the speech and language skills of children aged 3 years, 0 months to 6 years, 11 months; therefore it is a typical measure used in both preschool and early learning programs in Ontario.

The draft Full Day Early Learning-Kindergarten Program, 2010 (FDEL-KP or FDK) was based on a combination of a 2006 document designed for use in early learning centres called Early Learning for Every Child Today (ELECT; Ontario Ministry of Children and Youth Services) and the Ontario Ministry of Education’s 2006 Kindergarten curriculum document. The program is described as follows:

The Full Day Early Learning-Kindergarten program consists of a balance of exploration or investigation, guided instruction and explicit instruction. Children need many opportunities to explore and investigate. These experiences allow children to build on their existing knowledge, create and clarify their understanding, and experience a variety of approaches to a problem or a question. In exploration and investigation, children’s
autonomy is high, and the Early Learning-Kindergarten team should observe, listen and question in order to provide the children with the support they need, using the instructional strategy of scaffolding. In guided instruction, learning experiences will be thoughtfully planned and guided by team members. While providing guidance, the team should be flexible in order to make the best use of alternatives and strategies that are generated by the children themselves. (Ontario Ministry of Education, 2010)

Because classes are led by an early childhood educator (ECE) and a certified teacher, the curriculum has been changed to incorporate both the traditional style of kindergarten, with learning areas and curriculum expectations, along with a more informal teaching style used by early learning professionals. The new full-day early learning curriculum attempts to integrate the kindergarten expectations with the developmental domains that are foundational to the curriculum in preschool or early learning programs (Ontario Ministry of Children and Youth Services, 2006).

**Changing Teaching Methods in Early Learning Classrooms**

Even though the current Early Learning curriculum in Ontario schools is intended to support the learning of all children regardless of their culture, language, or developmental level, delivery by educators and school boards varies greatly. The early learning teams comprised of the ECE and kindergarten teacher are only beginning to embark on this method of teaching. This transformation for educators has been supported by the Ministry of Education in the recent document entitled, *How Does Learning Happen? Ontario’s Pedagogy for the Early Years*. It is a resource about learning through relationships for those who work with young children and their families; it is not a prescribed curriculum (Ontario Ministry of Education, 2014a).

The method of instruction and assessment in the Early Learning classes in Ontario is moving away from the more traditional method of programming and moving into a more inquiry, exploratory, experiential, and child-centred approach, with documented observation as the main
method of assessment. In the new Early Learning curriculum document, “assessment strategies should encourage children to show what they know and can do, rather than focus on what they do not know or cannot do” and “they should be given ample time to demonstrate their learning through varied learning opportunities that are appropriate for their stage of development” (Ontario Ministry of Education, 2010, pp. 29–30). The methods of assessment and evaluation in the Early Learning program resemble a cyclic model of assessment for learning: Determine where the child is in his/her learning based on observation, probing, and scaffolding, then provide strategies to move the child to the next level, monitor and reflect on the child’s progress, assess learning once again, introduce new strategies and scaffold, monitor progress, and assess and so on. The passage of knowledge in the classroom is no longer meant to be dependent solely on the teacher; students have agency, and peer learning is evident. There is a balance within the classroom of teacher-directed and child-directed knowledge sharing (Capacity Building Series, 2013a).

Epstein suggests an effective early childhood program combines both child-guided and adult-guided educational experiences. The terms “child-guided experience” and “adult-guided experience” do not refer to extremes; rather, adults play intentional roles in child-guided experiences and children have significant, active roles in adult-guided experiences. Each takes advantage of planned or spontaneous, unexpected learning opportunities (Epstein, 2007). She also defines “intentional as to act purposefully, with a goal in mind and a plan for accomplishing it” (p. 7). The cyclic assessment of learning in FDK in Ontario supports Epstein’s statement that effective teachers aim at clearly defined learning objectives, employ instructional strategies (scaffolding) likely to help children achieve those objectives, and continually assess progress and adjust the strategies based on that assessment (Epstein, 2007). Similarly, Vygotsky’s “zone of
proximal development” (ZPD) describes the area between a child’s level of independent performance (what he/she can do alone) and the child’s level of assisted performance (what he/she can do with support). Skills and understandings contained within a child’s ZPD are the ones that have not yet emerged but could emerge if the child engaged in interactions with knowledgeable others (peers and adults) or in other supportive contexts (such as make-believe play for preschool children). According to Vygotsky, the most effective instruction is the kind that is aimed not at the child’s level of independent performance but is instead aimed within the ZPD. This instruction does more than increase a child’s repertoire of skills and understandings; it actually produces gains in child development (Vygotsky, 1978).

In the Vygotskian approach, instructional strategies used to scaffold include (but are not limited to) hints, prompts, and cues given and later removed by the teacher. Scaffolding can also involve orchestrating social contexts known to support children’s learning, such as make-believe play or specifically designed group activities (Bodrova, & Leong, 1996).

Margaret Carr working in New Zealand contends there are additional connections that should be made by educators in the early years which speak to a more holistic approach to assessment and learning. Carr (2005) argues that the important aim for early childhood education should be for children to develop a view of themselves as competent learners. Carr further sees both belonging and exploration as curriculum strands. She points to the New Zealand National Curriculum, Te Whāriki, as a good example of a balancing act between belonging and exploration. The vision for children in the early years is “to grow up as competent and confident learners and communicators, healthy in mind, body and spirit, secure in their sense of belonging and in the knowledge that they make a valued contribution to society” (New Zealand Ministry of Education 1996, p. 9). The Te Whāriki is a bicultural and bilingual curriculum that was
developed in partnership with Māori, the Indigenous people of New Zealand, and it highlights identity and belonging with family, cultural influences, and lifelong learning goals within the curriculum. This type of national collaboration in developing a bicultural and bilingual curriculum is a huge undertaking and could inform and assist many other countries to do the same, including Canada.

In terms of alternate assessment, Carr and Lee write of learning stories in their recent book, *Learning Stories: Constructing Learner Identities in Early Education*, which document and visualize the child’s learning journey, which in turn can be an excellent form of narrative assessment for determining a child’s thinking and learning processes. The book highlights the important connection with family and how to develop and sustain a passion for learning in young children (Carr & Lee, 2012).

In a two year research project with teachers, Carr (2011) examined the teacher’s ability to explore and extend opportunities for young children to reflect on their learning. This occurred in nine different early childhood centres, with the teacher employing thoughtful conversational strategies with the children as they revisited and reviewed documented learning events. Carr highlighted the strategies that worked well and ones that did not. Revisiting learning stories took the form of peer sharing, family sharing, wall displays in the classroom, and the teachers began to see revisiting conversations as a regular everyday event in the classroom. The nature of the story text and the quality of the visuals made a difference in the opportunity for thoughtful conversations. Audio and video recording took place during the conversations, although it took both the teacher and child some time to feel comfortable with this method of documentation. Four types of strategies emerged as working well in thoughtful conversations with children; these included authenticity, coauthoring (sharing the conversation both in commenting and
initiating), personalized comments, connections with family, and group discussions. Strategies that didn’t work well were question-only type conversations, not allowing the child to take the lead in the conversation, and preparing a contrived set of prompts prior to engaging in a conversation. These techniques tended to shut down the dialogue, shorten the conversation, or decrease interest or engagement.

Carr often refers to the research of Dweck when describing young children’s learning and teachers’ best strategies. Dweck (2006), in her book *Mindset,* explains why it is not just our abilities and talent that bring us success, but whether we approach our goals with a fixed or growth mindset. Dweck's definition of fixed and growth mindsets from a 2012 interview:

In a fixed mindset, students believe their basic abilities, their intelligence, their talents, are just fixed traits. They have a certain amount and that's that, and then their goal becomes to look smart all the time and never look dumb. In a growth mindset, students understand that their talents and abilities can be developed through effort, good teaching and persistence. They don't necessarily think everyone is the same or anyone can be Einstein, but they believe everyone can get smarter if they work at it. (Morehead, 2012, p. 2)

Dweck’s research on fixed and growth mindset speaks to the passion of lifelong learning and the motivation to persevere or work hard at a task. One study Dweck conducted gave fifth graders 10 problems from a nonverbal IQ test individually in a separate room (Mueller & Dweck, 1998). After completing the questions, the researchers gave different forms of praise to three different groups. The first group got praise for their intelligence: “That’s a really good score, you must be smart”; the second group got praise for their process: “Boy, that’s a really good score, you must have worked hard”; and a third form of praise: “That’s a really good score” was told to the last group for purposes of comparison.
Afterward, the children who were praised for their intelligence chose to do an easy task in their comfort zones, whereas the children who were praised for their process overwhelmingly wanted the hard task they could learn from. Following the choice of tasks, the researchers gave all the children hard tasks and saw that the intelligence-praised children lost their confidence and disengaged from the task; the process-praised children stayed confident, worked hard and remained engaged. In addition, this group, when given easier problems, demonstrated higher IQ test scores than they had been initially (Mueller & Dweck, 1998). Dweck (1999) concluded that some praise can be dangerous for children’s learning performance and motivation.

Within the last five years, the Ontario Ministry of Education has stressed the notion of students being “competent and capable learners”, educators creating a “belonging environment in the classroom,” and encouraging a “growth mindset” instead of a fixed one in their ongoing webinar training of Early Learning Teams and Collaborative Inquiry Teams (Ontario Ministry of Education, 2013). These are concepts that Margaret Carr and Carol Dweck have stressed in their work and, based on the direction of Early Learning in Ontario schools, the methods of teaching are not only encountering ongoing change but are beginning to take on a holistic approach to both assessment and instruction as reflected by research conducted globally.

In recent years, early learners in Ontario have been universally assessed every three years with the Early Development Instrument (EDI) in their senior kindergarten year; the EDI is designed to assess children’s readiness to learn at school entry. This tool is not designed to measure individual children, but it is a measure of community readiness: that is, what kind of community supports and programs are in place prior to school so that children can have access to knowledge and experiences that are rich and varied. Results of the EDI are often used by Ontario Best Start Networks to equalize these kinds of opportunities in a particular district.
School board specific screens are also employed that provide information and/or identification of children who may need support or intervention in literacy, numeracy, or speech/language. EDI results in Figure 1 depict the vulnerability of FN and NFN children in the Rainy River District (Reynolds, 2011).

In 2009, the vulnerability rate for all Rainy River District children was similar to the Ontario baseline rate. As in the rest of the country as well as the province, the FN children were rated at significantly greater risk than NFN children on one or more of the five EDI domains, making this group most vulnerable. The domains measured include Physical Health and Well-being, Social Competence, Emotional Maturity, Language and Cognitive Development and Communication Skills, and General Knowledge. The RRDSB Senior Kindergarten screen shows

![Figure 1](image)

*Figure 1.* Percentage of senior kindergarten children vulnerable in one or more EDI domains in the Rainy River District by Aboriginal Status for 2005, 2006, and 2009. (Permission to use granted by Bill Reynolds, Data Analysis Coordinator, Firefly.)
similar results with FN children performing lower than their NFN counterparts. The huge decline in vulnerability from 2006 to 2009 may reflect the increase in skill development of children because 2005–2006 marked the school year that the RRDSB introduced full day, every day programming for their SK students.

The RRDSB’s comprehensive curriculum screen measures children’s literacy, numeracy, and oral language development at the beginning of their SK year. The oral language portion of the RRSDB screen is the FPSLST-2, which is the screening tool that is being examined in this study.

Purpose of Assessment and Intended Outcomes

It is important to understand both the purpose and the intended outcomes of assessment of children. In most cases, the method to formally measure a child’s development, skills, and abilities would involve assessing a number of parameters based on an accepted standard. The purpose of conducting an assessment is to initially formulate a judgment regarding the developmental level of the child’s skills. Essentially, the test battery should illuminate the strengths and needs of the child. Following that, if needs are identified and intervention is warranted, a program is developed that addresses the individual’s needs by capitalizing on his/her strengths. The prescribed program’s appropriateness is dependent on how meaningful and effective the testing tool itself is. In other words, an assessment tool’s primary purpose is to paint a picture of a child’s abilities, in this case, a speech and language profile, with the intended outcome of providing a developmentally appropriate plan of intervention for that student, if required. If the standardized test used to paint that picture is not effective in identifying that child’s abilities, then the entire process from assessment to intervention may be futile and the
resulting programming may not target or suit the child’s speech and language strengths and needs. The possible misdiagnosis may influence the development of inappropriate intervention plans for FN children as a result of using ineffective and ill-suited assessment tools. Examples of misinterpretation of the complexity of a FNED are well documented in the literature (Ball et al., 2006; Sterzuk, 2008; Wolfram, 1993).

Pullin (2008) states that assessment is productive only when it is deeply embedded in learning activity systems to both continuously test deep conceptual understanding and allow all students, no matter their backgrounds or capabilities, to situate their learning in meaningful ways. The 2010 FDEL-KP curriculum assessment approach is consistent with this view of assessment. In this instance, Pullin is referring to children with disabilities, but her statement can be applied to all children. Using Pullin’s interpretation of assessment, assessors in the classroom and/or assessors of speech and language development should acknowledge what the learner already knows and what he/she needs to know and situate the assessment in learning and language tasks that are meaningful to the child’s background knowledge and the knowledge being taught. That way, the tasks are authentic and easily assimilated into that child’s knowledge/skill set and learning preference. Tzuriel (2001) explains this as dynamic assessment, whereby the assessor looks at how a person learns and at his or her learning strategies and styles.

The main argument against standardized static tests is that they are inadequate in revealing children’s cognitive capabilities, especially those of children who come from culturally diverse populations (Tzuriel, 2001). Psychologists have suggested the idea of assessment of processes rather than end products of learning (Vygotsky, 1978). The dilemma experienced by SLPs is that many standardized tests describe children in general terms, mostly in relation to their peer group. For example, in many speech and language reports, as with psychology, SLPs
often describe the gap between expressive and receptive language but may lack appropriate suggestions to teachers on how to close that gap. This creates misunderstandings between practitioners and educators. There is a mismatch between how to teach expressive language in the classroom and how it is typically taught individually in speech and language intervention. The standardized tests do not provide clear descriptions of the cognitive processes involved in learning (Tzuriel, 2001), and hence the SLP struggles to provide realistic recommendations that incorporate classroom curriculum. For instance, an SLP may work on vocabulary in intervention by choosing themes such as foods, toys, and household things; however these instructional strategies are not feasible in the classroom context. A realistic recommendation for teaching vocabulary in a classroom could be to review vocabulary items prior to a read-aloud. Often SLPs trained within a medical model (very typical in Canadian SLP programs and are designated Regulated Health Professions in College Regulatory Bodies) do not have the knowledge of the content of school curriculum expectations and therefore struggle with applying their work in an integrated way in the classroom (Lee, 2008). Incorporating a course that focuses on the integration of classroom curricula in school-based SLP practice and goal setting within preservice programs of speech language pathology could solve this problem.

Hurton (2009) reminds practitioners that it is important to know why to assess and that assessing for the sake of assessing yields no value. He further states that assessment should have an improvement goal and that evaluative tools should go beyond referenced standardized tests; the goal should be to provide better defined data that can lead to instructional improvements and enhance student outcomes.

This is complementary to the latest document entitled *Dynamic Learning: Connecting Student Learning and Educator Learning* (Capacity Building Series, 2013b) produced by the
Ontario Ministry of Education. Luke, who was quoted in this monograph, said that educators need to develop “a broad repertoire of instructional strategies and a kind of assessment literacy so that [they] can actually see the kids, see the target competency, knowledge and skills and then put the repertoire in place” (p. 8). The *Dynamic Learning* monograph emphasizes that assessment should be rooted in classroom experience and that the information gathered through ongoing assessment should be critical for planning instruction.

Peña has conducted extensive research in the area of dynamic assessment with culturally and linguistically diverse populations. One study involved the use of dynamic assessment to evaluate narrative or expository discourse skills (Gillam, Peña, & Miller, 1999). Dynamic narrative assessment in this case resulted in the assessors using a test-teach-retest approach. The children tell or retell stories (pretest); following this, there are two separate teaching sessions (goals are normally chosen from the pretest results), and finally there is a repeat of the initial testing condition (posttest). The results of using dynamic assessments gave the SLPs a more accurate picture of the language learning potential of a child and, of utmost importance, it allowed for determining whether there is a language disorder or simply a language difference. The researchers explained that it could be very difficult to distinguish whose problems with narrative and expository discourse result from cultural differences, lack of experience, or language learning impairments. Further, Gillam et al. (1999) suggest,

Due to issues relating to test bias, standardized tests are nearly useless for differential diagnosis when culture or experience is an issue. There are numerous factors that influence language and literacy learning that do not lend themselves to direct measurement with norm-referenced tests (e.g., attention, engagement, resilience to failure). (p. 35)
Gillam et al. (1999) also claimed that this type of assessment provided much more information in developing language programming and that narrative and expository goals link to classroom learning more readily, which encourages the integration of language goals within the classroom. It is important to note that experienced SLPs, tend to be mindful of behavioral observations while administering standardized tests and often are reported on (e.g., if a child is inattentive or distracted during the assessment, the SLP may qualify the accuracy of the testing results based on the lack of attentiveness or engagement).

An additional study by Peña and colleagues measured word learning using dynamic assessment (pretest-teach-posttest) methods compared to static assessment with culturally diverse preschool children having low language skills and typically developing language skills. The researchers differentiated the two groups by providing teaching (mediation) between testing to one group and standardized measures only (no teaching) for the non-mediated group. Results indicated that a dynamic approach to assessment was more effective in predicting the ability groups than static assessment (Peña, Iglesias, & Lidz, 2001).

Supported in the literature, the key to understanding a child’s thinking is the powerful role that prior knowledge plays in what he/she knows, in new learning, in the nature of his/her interactions, and the kind of supports for learning the child is given. These key understandings will all have serious implications for the results of assessments (Lee, 2008).

Dockrell (2001) as cited in Hasson and Joffe (2007) argues that standardized assessments fail to tell us how a child approaches a task or about the difficulties he/she encounters. She suggests that existing tests are of little value for planning interventions and that process-based
assessments that fall under the umbrella term of a “dynamic assessment” would be a more informative approach for evaluation.

Forman and Hall (2008) assert that, through the process of observation, documentation, and interpretation of children’s goals, the children’s strategies and theories emerge and examiners gain insight into children’s thinking. Forman and Hall’s process of assessment lends itself to the Ontario Full Day Early Learning Kindergarten program because assessing exploratory and experiential learning is best done through observational assessment and, as a result, planning next steps can be based on documentation and interpretation of theories, strategies, and goals observed.

The practice of dynamic assessment in speech language pathology is viable and as seen through previously documented studies (Gillam et al., 1999) proves to effectively demonstrate the strengths and needs of examinees, informs future intervention, and differentiates language disorder from language difference, making the process of assessment to intervention to discharge seamless, timely, and accountable.

**Early Speech and Language Assessment**

Current standardized assessment tools used to measure early speech and language development incorporate tasks involving syntax (sentence structure), semantics (vocabulary understanding and use), sequencing and/or following directions (receptive/comprehension ability), picture description or responding to questions (expressive ability), and speech patterns (articulation accuracy). The tasks are administered to students individually, and the test administrator primarily uses the verbal/auditory modalities, rarely using or requesting other methods of message transference such as kinesthetic or motor. An example of a hands-on or
kinesthetic task is following directions using real objects or directions requiring the subject to move around the room. Involving additional modalities within the tasks appears more functional and authentic because home experiences and classroom instruction often go beyond the use of purely auditory/verbal stimuli. These tasks may prove to be more appealing and examinees may be less likely to become disengaged. In terms of determining a child’s receptive language ability, a task involving a kinesthetic-type task such as “go to the door and turn on the light” would situate the child’s learning and assessment in meaningful ways, as Pullin (2008) suggests. This type of task would determine receptive language ability as well as the ability to process information sequentially.

In the speech language pathology profession, assessment and intervention differ in their underlying philosophies. In intervention, the interaction with the therapist is central, while in assessment, efforts are made to remove the influence of the assessor to reduce inter-tester variability. Tzuriel (2001) recommends retaining the interaction with the evaluator in the assessment process and sees the diminishing dependence of the learner on the adult (evaluator) as an indicator of positive change in the child. This approach appears appropriate for SLP use, where the relationship between therapist and child can enhance the performance of the child in both assessment and intervention, creating a feeling of greater competence and motivation in the learner. The benefits of this child-centred dynamic approach, however, would need to be balanced against the need to obtain reliable and replicable test results.

Today, the administration and scoring of current assessment tools used by SLPs are clearly laid out in the test manuals, and the prescribed method of administration must be followed in order for the results of the assessment to be comparable across children. In the
United States especially, the use of standardized testing is mandatory, since the government relies on the standard scores and percentiles to justify a child’s admittance into a speech and language intervention program and Medicaid requires these quantitative data in order for payment of service provision. Qualitative information or therapists’ subjective opinions are not considered to be valid criteria for admission or for continued intervention within rehabilitation programs.

Aboriginal–First Nations Speech and Language Assessment

Canada has limited studies and/or reports that focus on the assessment practices measuring speech and language skills of FN children; however Australia and the United States have produced some noteworthy findings. The studies described in this section focus on the assessment of children using nonstandard English dialects such as Aboriginal English (Australian) and Native American English dialect (United States) rather than children for whom English is an additional language, because this study’s target population is FNED speakers.

Gould (2008b) conducted a longitudinal research project, based on case studies, designed to examine the topic of cross-cultural speech-language assessment with Australian Indigenous children. She attempted to accommodate the intricate relationship between language and culture by creating nonstandardized tasks within the assessment. Based on her findings, she recommended that such tasks should be play based but purposeful, follow Aboriginal ways of communicating, elicit home language, and value the language and culture of the child. Gould, as a non-Aboriginal SLP, accomplished this relationship by observing one of the following: making

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9 Standardized testing refers to norm-referenced or criterion-referenced formal measures individually administered; this does not include mandatory assessments that are group administered by government agencies such as EQAO for grades 3, 6, 9, and 10 in Ontario.
modifications to existing assessment tasks, creating new assessments that reflected the communication system of the Aboriginal child, or collecting naturalistic language samples. Based on case studies that employed these nonstandard tasks, she concluded that when working with Australian Aboriginal children, best practice must involve the use of reliable and valid assessment methodologies. This means that “these assessment tools must be created and administered in close collaboration with Indigenous adults with a familiarity with the language and culture of the child being assessed” (pp. 654–655). In addition, the assessment data must also be analyzed in collaboration with Indigenous coworkers (Gould, 2008b).

Toohill et al. (2012) investigated the effect of dialectal difference on identification and rating of severity of speech impairment in children from Indigenous Australian backgrounds. Toohill et al. discuss a very important concept that needs to be continually addressed in the present study. Traditionally SLP practitioners work from a deficit model when assessing and planning intervention, and that approach comes from being trained within a medical model; hence the inflexibility when administering standardized assessments and the identification of needs rather than strengths when goal setting for intervention. More recently modes of practice are beginning to include more of a social framework where children’s difficulties are considered holistically and personal and environment issues may contribute to these difficulties (Duchan, 2001 as cited in Toohill et al., 2012).

Toohill et al. (2012) discovered that working from a deficit model only when assessing children’s communication abilities and not taking into account the social framework, may wrongfully identify that child as needing intervention. In their study, the researchers assessed 15 Indigenous Australian children, identified by their parents as having difficulty making sounds, with the Diagnostic Evaluation of Articulation and Phonology. Fourteen of the children were
identified as having a speech impairment using Standard Australian English as the target pronunciation; by contrast, only 13 were identified as having a speech impairment using Australian Aboriginal English as the target pronunciation. Within the study, after considering dialectal differences, one child was no longer identified as speech impaired, and the severity classification for seven children decreased. This study had its limitations in that the sample was very small and the survey to parents left out some key indicators such as use of Indigenous language and the degree to which it was used at home, but its findings and shortcomings are something to consider for future research.

According to researchers, SLPs need to be able to distinguish between dialect speech differences and speech impairments in order to identify children needing intervention (Ball & Bernhardt, 2008) and to select relevant targets for their clients (Goldstein & Iglesias, 2001). Goldstein and Iglesias (2001) also suggested that failure to consider dialectal differences may result in specific phoneme errors being targeted unnecessarily in therapy.

McGregor, Williams, Hearst, and Johnson (1997) distinguished between true speech errors (impairment) and dialectal differences in African American children through implementation of a contrastive analysis. According to McGregor et al., a contrastive analysis compares a child’s speech production to adult targets from both standard dialect and their home dialect to determine true speech errors from dialectal differences. This method may provide SLPs with a way to analyze and interpret speech and language assessment data of children with culturally and linguistically diverse backgrounds more appropriately in the absence of normative data and standardized tests for nonstandard populations like the FN children in the RRDSB.
A recent study used contrastive analysis employing the *Clinical Evaluation of Language Fundamentals – Fourth Ed- Australian Standardized Edition* (CELF-4) with Indigenous Australian children aged 8:01–13:08. Standardized scores were compared to teachers’ rating of children’s oral language skills, and analyses showed poor alignment between teachers’ ratings of oral language and CELF-4 tested language abilities (Pearce & Williams, 2013). They concluded that there is considerable potential for misdiagnosis in using a standardized assessment with Indigenous Australian children and that in the cases of mandated assessments, the use of contrastive scoring, similar to the analysis that McGregor et al. (1997) used, may reduce the number of Aboriginal English speaking children diagnosed with language impairment.

In Canada, Peltier (2011b) recommended ways to make speech language pathology services relevant to FN children and families based on her experience as an FN SLP and her work with FN children. She advocates clinical evaluation based on Eurocentric knowledge does not work with FN children because the tasks assessed are not validated with this population; further, FN children are not represented in their standardized samples (Peltier, 2011b). As stated often in research, biased assessment instruments can lead to misdiagnosis of these children (Sterzuk, 2008), and when language differences are interpreted as language deficiencies, this results in miseducation (Heit & Blair, 1993). For example, if a child is misdiagnosed with language deficits in a school setting, then he/she will be given a modified program or accommodations to his/her program within the child’s grade level based on that deficiency. This results in a program that may not meet the needs of that child because his/her true abilities may not have been accurately determined. Therefore the fear of misdiagnosis and misinterpretation through the current speech and language assessments is a problem experienced globally by SLPs.
Peltier (2009) provides speech language professionals with a profile of things to consider when interpreting performance on standardized tests. She identifies four specific areas of difference between FNED speakers and NFN speakers.

1. The phonology and sound systems are different—for example, some dialects use the /d/ sound for the /th/.
2. FN worldview and language supports a different appreciation for language features and characteristics, for example syntax and semantics.
3. Prepositions—words that explicitly tell the location of an item (barrier games, two step instructions) are not used in the Ojibwe language.
4. Gender terms (he/she, him/her) are also not part of the Ojibwe language.

Peltier (2011b) further observed that, in her practice, she found that standardized tests are particularly sensitive to identifying weaknesses in the areas of descriptive language, ability to make comparisons, phonological awareness skills, and phonetic repertoire and that intervention for FN children in these areas is essential to the students’ success in school. This checklist provides speech language specialists with a toolkit to then use as a secondary analysis when utilizing Eurocentric standardized assessment tools.

Gould (2008b) agrees with Peltier, observing that Aboriginal children from Australia may be misdiagnosed with language disorders due to differences in language between the children’s Aboriginal English and the assessor’s Standard Australian English and the influence of “shyness” experienced in such one-on-one testing situations, resulting in the children being reluctant to speak.

According to Ball and Peltier (2011), FN children and families are not feeling culturally
safe when faced with services that are outside their comfort level. For example, a family travelling from a Northern FN community for services may not feel comfortable going into a unfamiliar building, speaking with unfamiliar people, where they must fill out paper work and answer questions that are not fully explained or relevant to the family’s needs. In their presentation, both Ball and Peltier acknowledge that it is the clinician’s responsibility to ensure that FN families and children feel comfortable and safe when accessing or participating in speech-language services and that a trust should be built prior to embarking on any kind of teaching or training. Of utmost importance is to understand FN families, their needs and priorities, and what they value when it comes to language and learning, because their values may be very different from Eurocentric values (Ball & Lewis, 2006). The cultural beliefs and practices of individuals and specific communities must be understood and used to construct appropriate assessments and interventions (Johnston & Wong, 2002; Van Kleeck, 1994). As well, diagnosis and intervention must take into account the particular dialect of each language that is spoken to avoid pathologizing nonstandard usages as Peltier (2009) has found in studying FNEDs.

Bousquet and Lafond (2009) provide a wealth of information for educators in their article entitled “Circles of Science in Saskatchewan: A framework for “knowledge sharing fairs” in the book Assessing Students’ Ways of Knowing. They provide detailed strategies and activities to engage community members and Elders through research and project work in collaboration with the FN Elders and community members of their students. Practical ideas such as “What is the protocol to invite an Elder” (p. 51) and “Who organizes a knowledge sharing fair (KSF)?” (p. 52) can be extremely valuable to an educator or SLP who does not know where to begin the process of FN collaboration and FN culture and language integration.
Parental involvement and finding out what FN parents’ goals are for their children can greatly change the dynamic of speech and language services for this population, something to which the AHS program attributes their successful programming (Ball, 2005). Practices that violate cultural beliefs will not yield valid results, will not result in buy-in or up-take, and will not accurately distinguish speech and language disorders from speech and language differences (Gillam et al., 1999; Kay-Raining Bird, 2011). Peltier (2011b) and Ball (2005) further explain this distinction when they suggest that assessment instruments that assume a Eurocentric perspective have the potential to over- or underestimate the identification of communicative disorders. This, in turn, imposes communication goals on the FN child that are incongruent with FN discourse and socialization practices and values. In a personal communication, Peltier (2011b) provided an example of differing practices. In her community, as in the Rainy River District FN communities, FN parents typically value good listening skills rather than unnecessary talk, and children are discouraged from questioning adults. Speech language pathologists can often set goals of enhancing question formulation or increasing mean length of utterance through facilitating more complex talk in intervention. This may not be a goal for FN families.

**Promising Practices in Assessing First Nations Children’s Speech and Language Skills**

Some methods of more effective assessment of FN children have been documented in the literature. As stated earlier, many researchers have encouraged the use of dynamic assessment involving a test-teach-test sequence aimed at separating out the effects of children’s prior language experiences and their current language learning potential (Gutierrez-Clennen & Peña,
2001; Hasson & Joffe, 2007), similar to that suggested in the Literacy and Numeracy Secretariat’s monograph on *Dynamic Learning* (Capacity Building Series, 2013b). Jones and Campbell Nangari (2008) suggest “act out” tasks in which children perform actions in response to verbal commands or answering questions and picture selection as particularly suitable for language comprehension assessment. The “act out” tasks are another example of hands-on or kinesthetic opportunities in assessment. Culturally appropriate pictures and objects, starting with easier tasks and providing demonstrations, are also recommended (Carter et al., 2005; Jones & Campbell Nangari, 2008).

In other studies, examiners are frustrated with whether the cultural inappropriateness of assessments is attributed to the content or the structure and process of administration (Ball & Lewis, 2006; Toohill et al., 2012). Is it the testing approach of being questioned individually by strangers or the timed tasks seen as biased against FN children? Other studies have found, through interviewing FN parents, the very concept of “testing” and ranking developmental levels of children to be offensive (Ball & Lewis, 2006). In studies by Stairs (2002) and Greenwood (2007), researchers stated that parents felt that making this kind of judgment at this early age is not accepting their children for who they are.

Beddard, Cleave, Dench, and Tagak (2011) were part of a team that developed an early elementary screening tool intended for use with two groups: Inuktitut and English children from Nunavut, Canada. The team was a collaborative group of educators, speech language pathologists, preservice speech language pathologists, and university faculty. The goal was to develop a culturally and linguistically appropriate screening tool because the stakeholders indicated that the kindergarteners entering school lacked oral language skills and, as a result, in later grades had difficulty with literacy and academic skills.
Beddard et al.’s newly developed tool had four components: Following Directions, Comprehension of Affixes/Sentences, Picture Naming, and Informal Language Sample. The Inuktitut version incorporated aspects of the culture and language of the Inuktitut people as well as incorporating a narrative, because narratives have been recommended as a less biased method of language assessment for children who are bilingual or bi-dialectal (Gutierrez-Clennen & Quinn, 1993; Rojas & Iglesias, 2009). The tools were administered by five trained examiners to children entering kindergarten and those entering grade 1, for a total of 150 children. Most of the sample was given both the Inuktitut and English versions of the screen. Based on the results of this study, the English version demonstrated better scores than the Inuktitut version for all children, leading the team to make some changes (the same changes) to both versions of the screening tool to further explore this difference.

Quantitatively, their analyses demonstrated that the screening was developmentally sensitive as shown both cross-sectionally and longitudinally. There was also a correlation between the children’s scores and teacher rating of language ability, which added to the evidence of validity. The screen continues to be developed for this community as well as for others in the region of Nunavut, and the research team is hoping to develop local norms and provide further revisions based on their findings (Beddard et al., 2011).

An assessment entitled *Help Me Tell My Story* was developed by the Saskatchewan Ministry of Education in partnership with the school divisions and communities in a 2011 pilot program (Saskatchewan Ministry of Education, 2011). It is an assessment that measures oral language development for pre-kindergarten and kindergarten children. The assessment is unique in many ways, and it is grounded in FN and Métis holistic perspectives on learning. Since it is holistic, the assessment includes surveys that collect data from the children, their caregivers,
their teachers, and Elders in the community. The pilot has helped to inform oral language
development of children across Saskatchewan (Saskatchewan Ministry of Education, 2011). Its
effectiveness will be determined after the initial pilot data have been collected and interpreted.
User feedback and FAQs are available at www.holisticassessment.gov.sk.ca/blog.

The most important measures of language outcomes for FN parents and caregivers using
the Aboriginal Children’s Survey (ACS) were published by Findlay and Kohen (2013).
Acknowledging that speech and language disorders are frequently diagnosed disorders in
Aboriginal children, the researchers surveyed parents/guardians about the development of their
children’s speech and language. The sample included 7,417 Aboriginal children between the
ages of 2 and 5 years. Four language outcomes were identified as important for the Aboriginal
families: expressive language, mutual understanding, storytelling, and speech and language
difficulties. The researchers further discussed even though the indicators of expressive language,
mutual understanding, storytelling and speech and language difficulties were perceived by
Aboriginal parents/caregivers as important, that these indicators may also be influenced by
cultural and linguistic differences. For example, Aboriginal families may place more value on
listening and language comprehension rather than expression and that identified speech and
language difficulties as measured by standardized tests tend to not account for linguistic and
cultural influences. The findings are in agreement with previous research; however I became
skeptical about the researchers’ knowledge of speech and language testing when they included in
their discussion that the Peabody Picture Vocabulary Test was a measure of expressive language,
which is incorrect. It is a measure of receptive language.

To sum up this literature review, an appeal from a well-respected FN SLP to all Canadian
SLPs seems fitting.
It is easy to empathize with my colleagues who try to “make do” with existing assessment and intervention tools that are available, but these are often inappropriate for working with FN populations. We are a committed and creative group, and our profession needs to develop more culturally appropriate tools and methods for working with FN people. It behooves us as clinicians to initiate our own learning and to identify sources of knowledge at our disposal. The FN clients and their home communities represent a rich source of information. The establishment of mutual respect and trust is essential in facilitating the process of learning and working together. (Peltier, 2011a, p. 8)

It is useful to note the research findings and recommendations of both Ball and Peltier, because their work is grounded in the everyday lives of Canadian FN children, their communities, families, and has been accessible to the speech language community at large. They have been true advocates for the FN peoples in Canada and have helped spearhead our national association, the Canadian Association of Speech Language Pathologists and Audiologists, to address the unmet needs of this population.

This research study responds to many researchers’ call to action: conducting the preliminary work to rectify a possible injustice when evaluating FN children’s speech and language skills.
CHAPTER THREE: METHODOLOGY AND PROCEDURE

Research Design: Quantitative Approach

This study used a quantitative approach to analyzing the data collected from the administration of the FPSLST-2 over a period of three school years (2009/2010, 2010/2011, and 2011/2012). Because the purpose of the initial data collection by RRDSB staff is to identify SK children needing further assessment in speech and language, the secondary analysis of these data for this study focuses on the performance differences of two groups: FN and NFN SK children. This method was chosen because of the large sample size, all data are numerical, and it is an ideal method of research when describing characteristics of two independent groups. The results of the quantitative analyses are interpreted in consultation with the RRDSB Native Language and Curriculum Coordinator, J. Jones.

DIF was used to analyze the quantitative data in this study to determine if there were performance differences on individual items between FN and NFN children, after controlling for overall test performance. As Camilli (1993) describes,

Differential item functioning (DIF) is used to describe items on a test that function differently for two or more groups if the probability of a correct answer to a test is associated with group membership for examinees of comparable ability. (pp. 397–398)

Two groups are compared: a focal group (in this study, FN children) and a reference group (NFN children). If some members of the focal group have the same ability (as estimated by the total score of the test or subtest) as members of the reference group but have a different chance of getting an item right, then the item is found to exhibit DIF.
An item shows uniform DIF when the item is always easier for one group, for each ability level, after matching students on overall performance. An item shows non-uniform DIF when there is a difference in difficulty, but it varies by ability level. Thus, non-uniform DIF displays an interaction between ability level and group membership. Because of this interaction, non-uniform DIF is much more difficult to interpret.

**Target Population and Sample**

The target population in the study is SK students whose first language is English (age range between 4 years, 9 months and 6 years, 6 months) attending full day, every day SK. The study includes 429 SK children: 314 NFN children (73.2%) and 115 FN children (26.8%). The numbers of males and females are almost equal: 214 males (49.8%) and 215 females (50.2%). Most children (69.9%) were five year olds; 102 children (23.84%) were four years of age, and 27 children (6.3%) were six years of age.

The FN children who participated in this study are self-identified upon school registration. Some of the FN children may have Ojibwe spoken at home or may use a FNED; however none have Ojibwe as their first language. The ancestors of the FN children in the study have spoken Ojibwe. Many grandparents or great grandparents were survivors of residential schools, and the children come from the 10 FN communities throughout the Rainy River District, which have many common practices and speak different dialects of Ojibwe. Because there is constant movement on and off reserve in the District, it was difficult to clearly define a group of children that were definitively on or off reserve over this 3 year time period; hence all FN children were included in one group, without distinguishing location of residence.
The NFN children within this study are a mix of English, French, Irish, German, and Scandinavian descent, with the largest group being from English ancestry. All have English as their first language.

The study used data from SK students from the RRDSB over a 3 year period; all SK students in the RRDSB are screened in September of each school year. The number of students for whom screening data were available for September 2009, September 2010, and September 2011 combined is 429 students.

**Data Collection**

The study used the speech and language screening results from the FPSLST-2 of RRDSB’s SK children. The NFN group was comprised of 314 children, and the FN group was comprised of 115 children. The FPSLST-2 was chosen as a screening tool in 2005 by a team of RRDSB Kindergarten teachers, literacy and numeracy coordinators as well as the sole charge RRDSB SLP. This screen was chosen because preschool transitioning children were screened with this same tool at 3 years of age and using the same screen would make it easy to compare scores if that were ever required. It became part of a larger comprehensive screen within the RRDSB which included both literacy and numeracy screening and the Kindergarten teachers indicated that the FPSLST-2 adequately summarized the SK students’ oral language abilities.

The FPSLST-2 contains six subtests: Articulation, Repeating Sentences, Following Directives, Answering Questions, Describing Actions, and Sequencing Events. Scores reflect performance in articulation, receptive language, and expressive language. All subtest items are administered; there is no basal or ceiling determined. On the Repeating Sentences, Following
Directives, and Answering Questions subtests, as each subtest progresses, the tasks become more difficult.

The FPSLST-2 is a complete revision, normed on 705 children in 21 of the 50 United States. Ethnicity groups included European American, African American, Hispanic American, Asian American, and Native American with an equal number of boys and girls in the normative sample. Sample populations represent the geographical distribution of the United States in 1998 and projected figures for 2000.

With regard to psychometric measurement, tests that have adequate reliability will yield consistent scores across periods of time (taking into account developmental changes) and across different examiners (Fluharty, 2001). Test reliability analysis found coefficient alphas and test-retest correlations that were high enough to warrant individual administration of the FPSLST-2. According to the guidelines offered by Anastasi and Urbina (1997) for reliability measures, the FPSLST-2 evidenced a high degree of reliability.

Content validity studies related the test's content to current developmental studies and provided thorough individual item analysis. Criterion-related validity studies compared subtests of the FPSLST-2 to the Test of Oral Language Development - Primary: 3 (TOLD-3) composites. Results demonstrated a strong correlation between the two instruments. Construct validity measures support the FPSLST-2 as a valid screening tool for use with preschool children ranging in age from 3 years, 0 months to 6 years, 11 months (Fluharty, 2001).

The FPSLST-2 is administered in the fall of each school year in the RRDSB to identify children at risk for speech/language difficulties. The purpose is to identify children for further articulation and language testing with an SLP. The school board has collected the data for 8
years and has found the information to be informative for determining strengths and needs of the SK students. The present SLP has her reservations about whether it is informative for the strengths and needs of all examinees. The screeners are SLPs and Communication Assistants who have been trained individually with the tool on an annual basis. The FPSLST-2 takes approximately 20 minutes per child to administer.

The scoring of each screen is done by a trained SLP according to the administration manual provided with the tool. The screening data entry is done through a web-based program which provides immediate reports and profiles for each student and class. Each SLP is given a username and password to access the data entry portal. The data entry process is also part of the training for new SLP staff.

Since the FPSLST-2 is a mandatory screen that is conducted in the fall of each school year, no additional data were collected for this study. Instead, secondary analyses of the data that are routinely collected were performed.

Data Analysis

Subsequent to the RRDSB scoring of the FPSLST-2 screenings, descriptive statistics including mean, standard deviation, and frequencies for the subtest scores for each of the groups (FN and NFN) were calculated. In addition, item analysis was performed, determining the percentage of students in each group who answered each item incorrectly (an index of item difficulty). Coefficient alphas to estimate the internal consistency reliability of each subtest were also calculated. Inferential statistics were performed, including t tests to compare scores between groups.
Descriptive statistics were generated to determine the mean scores and standard deviations for all FPSLST-2 subtests. Since the preliminary Levene’s test of equality of variances indicated that the variance of the two groups’ (FN and NFN) scores on each subtest was significantly different, independent sample \( t \)-test results with adjusted degrees of freedom are reported. The statistical analysis program SPSS 20 was used to perform the descriptive and inferential statistics.

The box and whisker plot is a good method of comparing the distribution of scores for two separate and independent groups and gives an accurate picture of the dispersion of data which is evident in the two groups targeted. The box plot summarizes data using the median, upper and lower quartiles, and the extreme (least and greatest) values. It visualizes the important characteristics of the data at a glance. The box represents 50% of the data, with the line within it indicating the median; two whiskers extend from the top and bottom of the box, each representing 25% of the data. Any data outside of the whiskers are called outliers and are represented by dots or circles.

The DIF analyses were conducted using Differential Item Functioning Analyses System (Penfield, 2005). DIF exists when examinees of comparable age and ability, but different groups, perform differently on a test item. Levels of DIF are typically categorized as small (A), moderate (B), and large (C) (Penfield & Lam, 2000). A purification process was also conducted, whereby items that exhibited DIF were excluded from the matching scores, and a DIF analysis was repeated to ensure the detected DIF was reliable. This attempts to minimize the effect of item bias on the estimates of ability that are used to match groups. However, it should be noted that, if every item in a test were biased against one group, then it would be impossible to obtain
an accurate estimate of ability and so would be impossible to detect all of the bias – only the relatively most biased items would be detected.

Because a research agreement (see Appendix C) was signed by the researcher and the Director of Education of the RRDSB, the study was able to access the expertise of staff in the school board’s Aboriginal Education department. Aboriginal Education in the RRDSB provides supports for Aboriginal students, their parents, and educators. Through a unique partnership with Seven Generations Education Institute, the RRDSB’s Aboriginal Education department incorporates the Ministry of Education’s First Nation, Métis, and Inuit policy framework within the system. J. Jones, the Native Language and Curriculum coordinator in this department, was primarily involved in assisting in interpreting the results of this study through collaborative and team-driven professional learning discussions.

In summary, analyses involved the following sequence of steps.

1. Performed descriptive analyses to determine the distribution and range of scores by group.

2. Computed indices of internal consistency reliability to determine the reliability of the subtests.

3. Compared mean scores between groups to determine overall performance differences.

4. Performed Differential Item Functioning analyses to determine if any items were differentially difficult for children in the two groups, after controlling for overall performance on each subtest.
5. Performed a data purification process to ensure the detected DIF items were reliable. This entails removing the items that demonstrated DIF and then repeating the DIF analysis.

6. Constructed an inventory of response and error analysis from a random sampling of 60 screens (30 FN and 30 NFN) to determine trends in children’s responses for each group. To clarify, random three FN and three NFN screens were selected from each of the 10 schools to conduct a response and error analysis. If four or more responses were the same within the random set for each group, they were recorded as a pattern in the analysis.

7. Reviewed the data analysis results as well as all items on the screen with the RRDSB Native Language and Curriculum expert, J. Jones, to determine possible reasons for performance discrepancies, which will inform future research in the assessment of Rainy River District’s FN children. An application to conduct research in the RRDSB was approved by the Director of Education, Heather Campbell, on September 9, 2011, which included access to RRDSB staff for consultation, collaboration, and interpretation of this study’s results.
CHAPTER FOUR: RESULTS AND DATA ANALYSIS

The results of this study are presented in four sections: First, individual items within a subtest are discussed in some detail with respect to descriptive statistics exploring the distribution, skewness, variability, or spread/range of scores for both FN and NFN students.

Second, the overall descriptive analysis and comparison of groups for the six individual subtests on the FPSLST-2 are discussed.

Following that, a DIF analysis of individual test items of the six FPSLST-2 subtests is discussed. In this analysis, the data were stratified by total score of each subtest.

Finally an error/response analysis is examined from a random sample of 60 screens: 30 NFN and 30 FN. Since the entire sample was comprised of 429 children, a random sample was chosen to determine any trends in responses between and within the FN and NFN groups.

Subtest Total Score Analyses

Articulation. The Articulation subtest measures the sound system (Standard English) of the children by having them verbally label 15 pictures, with the examiner paying particular attention to two of the consonants or consonant clusters in each word. If the child does not know the item, the screener would have the child repeat the given label so that the sounds could be identified as correct (scoring 1 point) or incorrect (scoring 0 points). If a word is produced accurately, the children receive 2 points for each of the 15 words, for a total score of 30.
Figure 2 displays the distributions of Articulation subtest scores for FN and NFN children. For FN children, the upper 75% of the scores ranged from 18 to 30, and the upper 75% of the scores for NFN children ranged from 23 to 30. The darker horizontal line in each box is the median, with half of the children scoring above this line and half below. For the Articulation subtest, the medians are at or near the perfect score of 30. When looking at the raw data, 49.5% (55 of the 115 children screened) of the FN children scored a total of 30, and similarly 49.3% (155 of the 314 children screened) of the NFN children scored a total of 30 on the Articulation subtest. The difference in data lies in the range of the middle 50% of the scores for each group. That is, 50% of the FN children had a greater range of scores (25–30) than did the NFN group (28–30).

**Repeating Sentences.** The Repeating Sentences subtest requires the children to listen to sentences and repeat them verbatim with a score of 1 point for each sentence repeated correctly for a total of 10 points.

The Repeating Sentences subtest data demonstrate a significant difference (as reported in Table 1) between FN and NFN children’s performance. Both groups show a relatively symmetrical distribution (referencing Figure 2), with 4 being the median score out of 10 for FN children: 50% of the children scored between 2 and 6. No FN child received a perfect score on this subtest (10/10). The NFN group had a median score of 6, and 50% of the children scored between 4 and 7.

**Following Directives.** The Following Directives subtest uses 12 coloured plastic blocks set in front of the children, who must use them to follow oral directions contained in sentences with embedded adjectives, conjunctions, relative clauses, negation, and spatial concepts. No oral response is required. The child is to comprehend the meaning of the utterance in order to follow
Figure 2. Distribution of scores for each subtest (boxplots).
Table 1

*Performance Differences of All 6 Subtests of the FPSLST-2 by Groups*

<table>
<thead>
<tr>
<th>FPSLST-2 Subtests</th>
<th>Non-First Nations M(SD) n =14</th>
<th>First Nations M(SD) n =15</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articulation</td>
<td>27.66 (3.82)</td>
<td>26.88 (4.79)</td>
<td>1.57</td>
<td>.117</td>
</tr>
<tr>
<td>Repeating Sentences</td>
<td>5.82 (2.22)</td>
<td>4.53 (2.39)</td>
<td>5.00</td>
<td>.000***</td>
</tr>
<tr>
<td>Following Directives</td>
<td>6.46 (1.53)</td>
<td>5.20 (2.01)</td>
<td>6.12</td>
<td>.000***</td>
</tr>
<tr>
<td>Answering Questions</td>
<td>5.41 (1.57)</td>
<td>4.29 (1.69)</td>
<td>6.17</td>
<td>.000***</td>
</tr>
<tr>
<td>Describing Actions</td>
<td>8.11 (2.57)</td>
<td>6.61 (3.38)</td>
<td>4.31</td>
<td>.000***</td>
</tr>
<tr>
<td>Sequencing Events</td>
<td>6.05 (2.06)</td>
<td>4.89 (2.67)</td>
<td>4.21</td>
<td>.000***</td>
</tr>
</tbody>
</table>

***p < .001.

the instruction accurately. Each correct response is worth 1 point for a total of 8 points. For example, one direction, Question 4, asked the children to “Stack a yellow block on top of a black block.”

The Following Directives subtest data demonstrate a significant difference between FN and NFN children’s score distribution. The distribution of scores as seen in Figure 2 reveals that the NFN group have a median score of 7 out of 10, with 50% of the children scoring between 6, and 8. The FN group has a median score of 5, with 50 % of the children scoring between 4 and 7, with very few children scoring above 7.
**Answering Questions.** The Answering Questions subtest requires the child to reply to questions about him or herself. There are 7 questions each worth 1 point. For example, Question 9 is “How many brothers and sisters do you have?”

The Answering Questions subtest data demonstrate a significant difference between FN and NFN children’s score distributions. The distributions of scores, as seen in Figure 2, are very similar to the Following Directives data distribution. For 50% of the NFN children, the scores were in the upper end of the data set, ranging from 5 to 7 out of a total of 7, the median score being 6 out of 7. The FN children’s scores had a larger spread, with 50% of the scores being between 3 and 6, with 4 out of 7 being the median.

**Describing Actions.** The Describing Actions subtest requires children to formulate a sentence to describe each action that is depicted on colour illustrations. Each item is worth 1 point, for a total of 10 points. Each response must include a complete sentence (e.g., “He is planting” or “The girl is planting” would receive 1 point; however, “planting” would receive a score of 0).

The distribution of Describing Actions subtest scores is very similar to the Sequencing Events subtest distribution for FN children. For 50% of the NFN children, the scores clustered in the upper end of the data set, ranging from 8 to 10 out of a total of 10, the median score being 9, whereas 50% of the FN students had a larger spread in their scores, ranging from 4 to 9, with the median score being 8.

**Sequencing Events.** The Sequencing Events subtest has the children produce a series of sentences to convey information on a given topic. One point is awarded for the proper sequence (3 or more steps) and 1 point for maintaining the topic, for a total subtest score of 8 points. For
example, Question 2 is, “I want you to tell me all the things I would need to do to wash my hands.”

The Sequencing Events subtest scores for NFN children had a median of 7 out of 8, with the middle 50% ranging from 5 to 8, while the FN children had a larger spread in their scores, ranging from 3 to 7, with the median being 6.

In summary, excluding the Articulation and Repeating Sentences subtests, all of the remaining subtests seemed to exhibit a pattern as shown on Figure 2. The FN group had a larger spread in scores across these four subtests, with 50% of the group’s scoring landing in the mid to upper range of the score distributions, whereas the NFN group data were consistently in the upper range, with many students receiving perfect scores. The Articulation subtest had 50% of both groups scoring in the upper range of the distribution, and the Repeating Sentences subtest distribution of scores for both the FN and NFN group were predominantly (50% of their data) in the midrange, suggesting that both of these subtests were of similar difficulty for both the FN and NFN groups. Because the comparative scoring distributions were different on all subtests, with the NFN group consistently having higher scores than the FN group, further analysis was warranted.

**Overall Descriptive Statistics for All Subtests**

The FPSLST-2 standardized scores for FN and NFN groups are presented in Table 1. It is evident that the FN students scored lower than NFN students on all subtests.

To further explore the mean differences in the above table, a series of independent sample $t$ tests was conducted on each subtest prior to carrying out analysis related to score
differences between FN and NFN children. All subtests’ total scores demonstrated significant
differences except the Articulation subtest.

The NFN children performed significantly better on average than the FN students on the
Repeating Sentences, Following Directives, Answering Questions, Describing Actions and
Sequencing Events subtests.

**Subtest Item Analyses**

**Articulation.** In Figure 3, the lines represent the percentage of FN and NFN children who
responded incorrectly when producing sounds in words. In total, there were 30 sounds in 15
words verbally produced through picture identification. If the child did not know the item, the
examiner would tell the child to repeat the given label so that the sounds could be identified as
correct (scoring 1 point) or incorrect (scoring 0 points).

Overall, the sounds that showed greater percentage differences were /sh/ in the initial
position of the word as in *shoes*, /sp/ in the initial position as in *spoon*, /fl/ in the initial position
as in *flag* and /v/ in the final position as in *glove*. In addition, all of these sounds/blends indicate
significant mean differences between FN and NFN children. These significant items suggest that
there is reason to look deeper into the Articulation items using DIF analysis. In order to further
analyze the pattern of differences for incorrect responses for FN and NFN students, Mantel-
Haenszel-Differential Item Functioning (MH-DIF) analysis was conducted.

Both the Mantel-Haenszel chi-square (MH-CHI) statistic and the Breslow-Day chi-square
(BD) statistic are distributed as chi-square with one degree of freedom. The two statistics differ
in that the MH-CHI measures uniform DIF and the BD measures non-uniform DIF. The results
in Table 2 show that 30 items on the Articulation subtest were analyzed for DIF.
Table 2

Percentage of Incorrect Responses and DIF Statistics for Articulation Subtest by Groups

<table>
<thead>
<tr>
<th>Articulation subtest sounds</th>
<th>% Incorrect</th>
<th></th>
<th></th>
<th>MH-CHI</th>
<th>BD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NFN</td>
<td>FN</td>
<td>Chi-square</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K1</td>
<td>4.1</td>
<td>5.2</td>
<td>0.63</td>
<td>0.10</td>
<td>0.00</td>
</tr>
<tr>
<td>N3</td>
<td>0.6</td>
<td>0.0</td>
<td>0.39</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>12.8</td>
<td>17.4</td>
<td>0.22</td>
<td>0.03</td>
<td>0.18</td>
</tr>
<tr>
<td>K3</td>
<td>2.9</td>
<td>1.7</td>
<td>0.51</td>
<td>0.68</td>
<td>1.60</td>
</tr>
<tr>
<td>M1</td>
<td>1.0</td>
<td>0.9</td>
<td>0.93</td>
<td>0.37</td>
<td></td>
</tr>
<tr>
<td>Ch3</td>
<td>8.0</td>
<td>5.3</td>
<td>0.33</td>
<td>3.42</td>
<td>0.01</td>
</tr>
<tr>
<td>P1</td>
<td>0.6</td>
<td>0.9</td>
<td>0.80</td>
<td>0.03</td>
<td>0.12</td>
</tr>
<tr>
<td>L2</td>
<td>7.0</td>
<td>10.4</td>
<td>0.24</td>
<td>0.01</td>
<td>0.15</td>
</tr>
<tr>
<td>F1</td>
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<td>7.8</td>
<td>0.08</td>
<td>0.66</td>
<td>0.60</td>
</tr>
<tr>
<td>K3</td>
<td>9.2</td>
<td>9.6</td>
<td>0.91</td>
<td>0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>Ch1</td>
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<td>12.2</td>
<td>0.11</td>
<td>0.56</td>
<td>4.69</td>
</tr>
<tr>
<td>N3</td>
<td>0.6</td>
<td>0.9</td>
<td>0.79</td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>Sh1</td>
<td>8.0</td>
<td>15.7</td>
<td>0.01*</td>
<td>1.58</td>
<td>0.01</td>
</tr>
<tr>
<td>Z3</td>
<td>9.9</td>
<td>15.7</td>
<td>0.09</td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>Sk1</td>
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<td>20.0</td>
<td>0.32</td>
<td>0.13</td>
<td>0.02</td>
</tr>
<tr>
<td>L3</td>
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<td>0.75</td>
<td>0.02</td>
<td>0.78</td>
</tr>
<tr>
<td>Sp1</td>
<td>11.5</td>
<td>19.1</td>
<td>0.04*</td>
<td>0.29</td>
<td>0.12</td>
</tr>
<tr>
<td>N3</td>
<td>1.3</td>
<td>1.7</td>
<td>0.71</td>
<td></td>
<td>7.40*</td>
</tr>
<tr>
<td>Bl1</td>
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<td>13.9</td>
<td>0.08</td>
<td>0.18</td>
<td>2.26</td>
</tr>
<tr>
<td>Ks3</td>
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<td>8.7</td>
<td>0.32</td>
<td>0.12</td>
<td>5.49*</td>
</tr>
<tr>
<td>Fl1</td>
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<td>17.4</td>
<td>0.04*</td>
<td>6.34*</td>
<td>1.81</td>
</tr>
<tr>
<td>G3</td>
<td>3.8</td>
<td>2.6</td>
<td>0.54</td>
<td>1.07</td>
<td>1.27</td>
</tr>
<tr>
<td>Tr1</td>
<td>9.6</td>
<td>14.8</td>
<td>0.12</td>
<td>0.01</td>
<td>4.22</td>
</tr>
<tr>
<td>K3</td>
<td>3.5</td>
<td>1.7</td>
<td>0.34</td>
<td>2.10</td>
<td>14.30*</td>
</tr>
<tr>
<td>R1</td>
<td>14.0</td>
<td>13.9</td>
<td>0.97</td>
<td>0.17</td>
<td>0.08</td>
</tr>
<tr>
<td>Ngs3</td>
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<td>15.7</td>
<td>0.43</td>
<td>0.24</td>
<td>4.50</td>
</tr>
<tr>
<td>Gl1</td>
<td>9.6</td>
<td>15.7</td>
<td>0.07</td>
<td>0.13</td>
<td>1.30</td>
</tr>
<tr>
<td>V3</td>
<td>17.8</td>
<td>28.7</td>
<td>0.01*</td>
<td>3.97*</td>
<td>0.23</td>
</tr>
<tr>
<td>Z1</td>
<td>10.2</td>
<td>13.0</td>
<td>0.40</td>
<td>0.03</td>
<td>0.35</td>
</tr>
<tr>
<td>Br2</td>
<td>12.8</td>
<td>18.3</td>
<td>0.15</td>
<td>2.23</td>
<td>7.69*</td>
</tr>
</tbody>
</table>

*p < .05.
The following sounds and sound blends within these words on the Articulation subtest showed uniform DIF: the /fl/ consonant blend in flag and the /v/ in glove. The /n/ in spoon, the /k/ in truck, the /ks/ in blocks and the /br/ consonant blend in zebra showed non-uniform DIF. There were other words on the subtest that had these sounds in these word positions but were not flagged for DIF, so it is assumed that the adjacent vowel or the previous consonants affected the students’ sound production: co-articulation may be at play. To clarify, some sounds were tested more than once within the Articulation subtest; this is done to test the ability to articulate these sounds in different adjacent vowel and consonant environments. A child may be able to articulate a sound in one environment and not another. For example, on items 6 and 9, the final /n/ sound is tested twice; however different vowels are adjoining the /n/, which influences the articulation movements when producing them and may show different outcomes based on co-
articulation. As a result, the final /n/ in spoon showed non-uniform DIF; however the final /n/ in chain did not.

The two sound combinations that produced moderate levels (B) of uniform DIF were the /v, fl/ in the words glove and flag whereas the other four sounds (truck, blocks, spoon and zebra) exhibited small levels (A) of non-uniform DIF. The detected uniform DIF in favour of the NFN group is the sounds /v, fl/; these items may be more difficult for the FN children. The only detected non-uniform DIF is the sound /br/ within the word zebra; however this exhibited such small levels, it will be difficult to interpret. A positive Mantel-Haenszel Common Log-Odds Ratio (MH LOR) indicates DIF in favour of the reference group (NFN), and negative values indicate DIF in favour of the focal group (FN).

**Repeating Sentences.** Figure 4 displays the FN group consistently has a greater percentage of incorrect responses than the NFN group. As shown in Table 3, the pattern of responses for each group looks very similar having at least 12.5% difference in performance, with the exception of item 9 which had a difference of only 6.3 %. This item required each group to repeat the following sentence: “Before washing our hands, we have to turn on the faucet in the sink.”

To further explore the large performance differences between the FN and NFN students, a Pearson chi-square test was performed which revealed that all of the repeating sentences item differences were significant except items 8 and 9. Items 8 and 9 require the examinees to repeat the following sentences respectively: “In the morning, you must get dressed and ready for school,” and “Before washing your hands, we have to turn on the faucet in the sink.” These items are compound complex sentences including at least one dependent clause.
Figure 4. Percentage of incorrect responses for repeating sentences subtest by group.

Table 3

<table>
<thead>
<tr>
<th>Repeating sentences subtest</th>
<th>% Incorrect</th>
<th>Pearson chi-square</th>
<th>MH-CHI</th>
<th>BD</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFN</td>
<td>FN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1   3.1</td>
<td>15.6</td>
<td>0.011*</td>
<td>0.0216 0.067</td>
<td></td>
</tr>
<tr>
<td>2   6.3</td>
<td>21.9</td>
<td>0.011*</td>
<td>0.0005 0.006</td>
<td></td>
</tr>
<tr>
<td>3   26.0</td>
<td>46.9</td>
<td>0.028*</td>
<td>0.7449 0.350</td>
<td></td>
</tr>
<tr>
<td>4   18.8</td>
<td>40.6</td>
<td>0.012*</td>
<td>2.4723 0.029</td>
<td></td>
</tr>
<tr>
<td>5   31.3</td>
<td>53.1</td>
<td>0.026*</td>
<td>1.0527 0.560</td>
<td></td>
</tr>
<tr>
<td>6   33.3</td>
<td>62.5</td>
<td>0.004*</td>
<td>0.2566 0.157</td>
<td></td>
</tr>
<tr>
<td>7   65.6</td>
<td>87.5</td>
<td>0.018*</td>
<td>0.0808 0.274</td>
<td></td>
</tr>
<tr>
<td>8   67.7</td>
<td>81.3</td>
<td>0.143</td>
<td>0.6303 1.015</td>
<td></td>
</tr>
<tr>
<td>9   87.5</td>
<td>93.8</td>
<td>0.327</td>
<td>0.0025 4.291</td>
<td></td>
</tr>
<tr>
<td>10  80.4</td>
<td>96.9</td>
<td>0.026*</td>
<td>0.0137 1.600</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.

All 10 items were analyzed for DIF; however, none was detected among this subtest.
**Following Directives.** Figure 5 again displays that the FN group consistently has a greater percentage of incorrect responses than the NFN group. As shown in Table 4, the first three items have very little percentage differences (less than 10%) between the groups; however the gap widens from items 4 through 8, with percentage differences ranging from 13–28%. The largest difference was shown on item 6, which asked the students to “Stack 3 yellow blocks over there [point to a spot close to the examinee] and stack 3 white blocks over here [point to a spot close to you].” This item involved 2 or more directives with embedded meaning through the colour options. Both tasks of repeating sentences and following directives could be influenced not only by increasingly complex sentences, but also by auditory memory, knowing that as the subtests progressed, so did the length and complexity of items.

<table>
<thead>
<tr>
<th>Following Directives Subtest</th>
<th>NFN</th>
<th>FN</th>
<th>Pearson Chi-Square</th>
<th>MH-CHI</th>
<th>BD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.2</td>
<td>8.7</td>
<td>0.002**</td>
<td>0.0187</td>
<td>0.031</td>
</tr>
<tr>
<td>2</td>
<td>3.8</td>
<td>11.3</td>
<td>0.003**</td>
<td>0.0948</td>
<td>0.533</td>
</tr>
<tr>
<td>3</td>
<td>6.0</td>
<td>14.8</td>
<td>0.004**</td>
<td>0.0219</td>
<td>4.124</td>
</tr>
<tr>
<td>4</td>
<td>7.6</td>
<td>20.9</td>
<td>0.000***</td>
<td>0.0095</td>
<td>0.054</td>
</tr>
<tr>
<td>5</td>
<td>16.8</td>
<td>35.7</td>
<td>0.000***</td>
<td>0.0091</td>
<td>1.552</td>
</tr>
<tr>
<td>6</td>
<td>39.4</td>
<td>67.8</td>
<td>0.000***</td>
<td>0.8791</td>
<td>3.217</td>
</tr>
<tr>
<td>7</td>
<td>36.2</td>
<td>59.1</td>
<td>0.000***</td>
<td>0.3728</td>
<td>0.887</td>
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<tr>
<td>8</td>
<td>41.0</td>
<td>61.7</td>
<td>0.000***</td>
<td>0.4484</td>
<td>0.349</td>
</tr>
</tbody>
</table>

**p < .005. ***p < .001.**
Figure 5. Percentage of incorrect responses for following directives subtest by group.

To further explore the large performance differences between the FN and NFN students, a Pearson chi-square test was performed which revealed that all of the Following Directives item differences were significant. All 8 items were analyzed for DIF; however, none was detected.

Table 5

Percentage of Incorrect Responses and DIF Statistics for Answering Questions Subtest by Group

<table>
<thead>
<tr>
<th>Answering questions subtest</th>
<th>% Incorrect</th>
<th>Pearson chi-square</th>
<th>MH-CHI</th>
<th>BD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NFN</td>
<td>FN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3.8</td>
<td>8.8</td>
<td>0.04*</td>
<td>0.0005</td>
</tr>
<tr>
<td>10</td>
<td>2.5</td>
<td>5.2</td>
<td>0.16</td>
<td>0.0742</td>
</tr>
<tr>
<td>11</td>
<td>23.6</td>
<td>33.0</td>
<td>0.05</td>
<td>2.7793</td>
</tr>
<tr>
<td>12</td>
<td>12.7</td>
<td>29.6</td>
<td>0.00***</td>
<td>0.0002</td>
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<tr>
<td>13</td>
<td>28.0</td>
<td>47.8</td>
<td>0.00***</td>
<td>0.3373</td>
</tr>
<tr>
<td>14</td>
<td>39.5</td>
<td>66.1</td>
<td>0.00***</td>
<td>0.4645</td>
</tr>
<tr>
<td>15</td>
<td>50.6</td>
<td>79.1</td>
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<td>3.2319</td>
</tr>
</tbody>
</table>

*p < .05. ***p < .001.

among this subtest.
**Answering questions.** Figure 6 displays that both the FN and NFN students scored relatively the same on items 9 through 11 (less than 10% difference), but the gap widened with items 12 through 15 with percentage differences ranging from 16–28%. The items showing the greatest percentage difference were items 14 and 15. Item 14 asked the students, “How can you tell if your shoes are on the wrong feet?” and item 15 asked the students, “What could you do if you forgot what (the teacher/your mother) said and you needed to remember?” Again, these sentences are compound complex sentences with more than one dependent clause.

![Figure 6](image.png)

Figure 6. Percentage of incorrect responses for Answering Questions subtest by group.

To further explore the large performance differences between the FN and NFN students, a Pearson chi-square test was performed which revealed that all of the Answering Questions subtest item differences were significant except item 10, which asked the students, “How did you get here today?” Most children responded that they get to school on the school bus, so the percentage difference was minimal.
All 7 items were analyzed for DIF; however, none was detected among this subtest.

**Describing Actions.** Figure 7 displays that the FN students consistently had larger percentages of incorrect responses on the Describing Actions subtest. As seen in Table 6, the differences between the groups ranged from 7% being the lowest gap as in item 5 (crawling) and 24% being the largest difference in percentages as in item 8 (pouring).

To further explore the performance differences between the FN and NFN students, a Pearson chi-square test was performed which revealed that all of the Describing Actions item differences were significant except item 5 which required the students to identify what was happening in the picture, and the examiner was looking for the word “crawling” in a complete sentence such as” He is crawling” or “The baby is crawling.”

<table>
<thead>
<tr>
<th>Describing actions subtest</th>
<th>% Incorrect</th>
<th>Pearson chi-square</th>
<th>MH-CHI</th>
<th>BD</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFN</td>
<td>FN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>15.8</td>
<td>28.1</td>
<td>0.004**</td>
<td>0.196</td>
</tr>
<tr>
<td>2</td>
<td>15.1</td>
<td>30.4</td>
<td>0.000***</td>
<td>0.283</td>
</tr>
<tr>
<td>3</td>
<td>12.8</td>
<td>20.9</td>
<td>0.039*</td>
<td>1.534</td>
</tr>
<tr>
<td>4</td>
<td>11.2</td>
<td>20.9</td>
<td>0.010*</td>
<td>1.021</td>
</tr>
<tr>
<td>5</td>
<td>18.9</td>
<td>26.1</td>
<td>0.105</td>
<td>5.050*</td>
</tr>
<tr>
<td>6</td>
<td>22.1</td>
<td>33.9</td>
<td>0.013*</td>
<td>0.655</td>
</tr>
<tr>
<td>7</td>
<td>13.8</td>
<td>32.2</td>
<td>0.000***</td>
<td>1.091</td>
</tr>
<tr>
<td>8</td>
<td>34.3</td>
<td>58.3</td>
<td>0.000***</td>
<td>2.537</td>
</tr>
<tr>
<td>9</td>
<td>29.5</td>
<td>53.9</td>
<td>0.000***</td>
<td>3.145</td>
</tr>
<tr>
<td>10</td>
<td>13.9</td>
<td>33.0</td>
<td>0.000***</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .005. ***p < .001.
All 10 items on the Describing Actions subtest were analyzed for DIF, with item 5 (crawling) showing a moderate level of non-uniform DIF.

![Figure 7. Percentage of incorrect responses for describing actions subtest by group.](image)

**Sequencing events.** Figure 8 displays that FN and NFN children’s performance followed the same pattern in terms of difficulty, but again the FN group consistently had incorrect percentages larger than the NFN group. The percentage discrepancy between the groups seemed to hover around 12 to 14% on each item. There was no one item that had a much larger or smaller gap. This task asked the examinees to verbalize three steps to a task in proper sequence such as *washing your hands* or *brushing your teeth*. In addition to getting 1 point for giving at least 3 steps, the examinee is also given 1 point for staying on task or giving appropriate responses.
### Table 7

**Percentage of Incorrect Responses and DIF Statistics for Sequencing Events Subtest by Group**

<table>
<thead>
<tr>
<th>Following directives subtest</th>
<th>% Incorrect</th>
<th>Pearson chi-square</th>
<th>MH-CHI</th>
<th>BD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NFN</td>
<td>FN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>28.0</td>
<td>40.0</td>
<td>0.017*</td>
<td>0.430</td>
</tr>
<tr>
<td>2</td>
<td>9.3</td>
<td>25.2</td>
<td>0.000***</td>
<td>0.262</td>
</tr>
<tr>
<td>3</td>
<td>30.1</td>
<td>41.7</td>
<td>0.024*</td>
<td>1.637</td>
</tr>
<tr>
<td>4</td>
<td>12.5</td>
<td>27.0</td>
<td>0.000***</td>
<td>0.106</td>
</tr>
<tr>
<td>5</td>
<td>32.4</td>
<td>50.4</td>
<td>0.001**</td>
<td>0.375</td>
</tr>
<tr>
<td>6</td>
<td>12.2</td>
<td>24.3</td>
<td>0.002**</td>
<td>0.005</td>
</tr>
<tr>
<td>7</td>
<td>48.7</td>
<td>67.0</td>
<td>0.001**</td>
<td>1.737</td>
</tr>
<tr>
<td>8</td>
<td>21.2</td>
<td>34.8</td>
<td>0.004**</td>
<td>0.079</td>
</tr>
</tbody>
</table>

*p < .05. **p < .005. ***p < .001.

![Figure 8](image-url)  
*Figure 8.* Percentage of incorrect responses for sequencing events subtest by group.
To further explore the large performance differences between the FN and NFN students, a Pearson chi-square test was performed which revealed that all of the Sequencing Events item differences were significant.

All 8 items were analyzed for DIF; however, none was detected among this subtest.

**Error/Response Analyses**

Error and response analysis of both near significant and significant DIF items through a random sampling of 30 NFN and 30 FN screens comparing children’s responses were inventoried to determine response differences between and within groups. The errors and/or responses are described in four categories: syntactical errors, semantic errors, phonology errors and expressive/receptive language differences.

**Syntax errors.** Both FN and NFN groups struggled with pronouns (he, she, and they); however, the incorrect responses were very different in the NFN group as compared to the FN group. Most often the NFN group substituted “her “for “she” in the following context, “If she falls down, she might get hurt,” whereas the FN group substituted “her, him, they, you, and somebody” or completely omitted the pronoun with equal frequency when repeating this sentence in Subtest 2. Table 8 lists the most common responses for both groups on this test item.

Equally evident was the difference in length of utterances when responding to questions in Subtest 3. When responding to the question, “What could you do if you forgot what (the teacher/your mother) said and you needed to remember?” and “How can you tell if your shoes are on the wrong feet?” the FN group used very few words to answer the question and most often the responses were indicative of a lack of comprehension of the question, which could be
Table 8

Most Common Responses for “If she falls down, she might get hurt” in Repeating Sentences Subtest by Group

<table>
<thead>
<tr>
<th></th>
<th>First Nations</th>
<th>Non-First Nations</th>
</tr>
</thead>
<tbody>
<tr>
<td>If her falls down, her might get hurt.</td>
<td>If her falls down, her might get hurt.</td>
<td></td>
</tr>
<tr>
<td>She falls down, she might get hurt.</td>
<td>If she fall down, she might get hurt.</td>
<td></td>
</tr>
<tr>
<td>You falls down, you get hurt.</td>
<td>If he falls down, he might get hurt.</td>
<td></td>
</tr>
<tr>
<td>If him falls down, him might get hurt.</td>
<td>If fall down, get hurt.</td>
<td></td>
</tr>
<tr>
<td>If he falls down, he might get hurt.</td>
<td>If she falls down, she will get hurt.</td>
<td></td>
</tr>
<tr>
<td>If she falls down, she will get hurt.</td>
<td>If somebody falls down, they get hurt.</td>
<td></td>
</tr>
</tbody>
</table>

attributed to auditory processing speed or auditory memory. For example, the NFN group tended to respond with answers that solved the problem such as “Ask the teacher again” and used more than one word to explain their answers whereas the NFN group most often responded with “I don’t know,” “listen” or “think.” Table 9 lists the most common responses for both groups on this test item. Even though the second item, “How can you tell if your shoes are on the wrong feet?” did not show significant levels of DIF, it is interesting to note a particular popular response given by FN children to this question. Ten FN children responded, “A bear will come.”

Table 9

Most Common Responses for “What would you do if you forgot what your (teacher/mother) said and you needed to remember?” in Answering Questions Subtest by Group

<table>
<thead>
<tr>
<th></th>
<th>First Nations</th>
<th>Non-First Nations</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don’t know.</td>
<td>I don’t know.</td>
<td></td>
</tr>
<tr>
<td>Listen.</td>
<td>Do math.</td>
<td></td>
</tr>
<tr>
<td>Shoulder shrug</td>
<td>Never forget about nothing.</td>
<td></td>
</tr>
<tr>
<td>Think</td>
<td>Ask the teacher again.</td>
<td></td>
</tr>
<tr>
<td>You need to remember</td>
<td>Need to sit on the carpet.</td>
<td></td>
</tr>
<tr>
<td>Copy other kids</td>
<td>I can play anything.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A different teacher could help you.</td>
<td></td>
</tr>
</tbody>
</table>
**Semantic errors.** Semantically speaking, there were very few words that demonstrated clear, significant DIF except “crawling” in the Describing Actions subtest; however, the exhibited DIF was non-uniform. The FN children were much more descriptive when responding to the question, “Tell me about this picture,” which depicted a baby crawling. For example some FN children responded with much more detail, as in these examples, “He is walking on his hands and knees,” or “The boy is climbing on the ground,” or “The baby is crawling away.” Most errors for the NFN group stemmed from the inaccurate pronoun and verb tense within the self-generated sentence such as “Him crawling” or “He crawling.” Table 10 lists the most common responses for both groups on this test item.

Table 10

*Most Common Responses for Picture Description of a Baby Crawling in Describing Actions Subtest by Groups (Prompt: What is happening in the picture?)*

<table>
<thead>
<tr>
<th>First Nations</th>
<th>Non-First Nations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Him/she/they/someone is crawling</td>
<td>The baby is crawling.</td>
</tr>
<tr>
<td>The baby is learning to crawl.</td>
<td>He crawling.</td>
</tr>
<tr>
<td>He is pretending he is a baby.</td>
<td>Him crawling</td>
</tr>
<tr>
<td>He is walking on his hands and knees.</td>
<td>It’s a baby.</td>
</tr>
<tr>
<td>He wipe out.</td>
<td>He’s a baby.</td>
</tr>
<tr>
<td>The person is falling down.</td>
<td>He is crawling.</td>
</tr>
<tr>
<td>The boy is climbing on the ground.</td>
<td></td>
</tr>
<tr>
<td>The baby is crawling away.</td>
<td></td>
</tr>
<tr>
<td>The baby is walking.</td>
<td></td>
</tr>
</tbody>
</table>

**Articulation errors.** Approximately 10% of Canadian children will have speech and language problems. In light of this, it is important to note the most common sound errors and in what position of the word they are inaccurate for each group. The FN group misarticulated the following sounds more often than any other sound tested (over 10% of the 115 students):
1. /s, sk, sp, fl, gl, bl, r, tr, z, sh, ch/ in the initial position
2. /v, z, ngs/ in the final position
3. /br, l/ in the medial position

The NFN group misarticulated the following sounds more often than any other sound tested (over 10% of the 314 students):

1. /s, z, r, sk, sp, fl/ in the initial position
2. /ks, ngs, v/ in the final position
3. /br/ in the medial position

The most common types of errors for both groups were the following:

- Cluster reduction or distortion, which is reducing a consonant blend to one consonant or distorting one of the consonants in the blend. For example, substituting “fag” for “flag” or s(lisp or slushy /s/)peed for “speed.”
- Producing a lisp (slushy) sound when articulating an /s,z/ and blends including s and z.
- Substituting b/v in the final position of the word such as “glob” for “glove.”
- Substituting w/r in words like “rings’ and “zebra” (“wings” and “zebwa”).

These errors and substitutions are very typical of children in this age group. In fact, errors involving the /r,s/ sound in isolation or in a consonant blend are developmental in nature since the sounds are complex to produce and are not scheduled to fully develop until the age of 7or 8. Further exploration using DIF analyses revealed the following sounds exhibiting DIF (in bold).
1. Moderate levels of uniform DIF for glove and flag in favour of the NFN group.

2. Small levels of non-uniform DIF for zebra, truck, spoon, blocks.

These sounds and language items are discussed in a later chapter when looking at sound systems, language, and culture of both the FN and NFN groups.

**Receptive/Expressive Skills.** Of particular interest, in the Following Directives subtest, the sequence of instructions “Stack 3 yellow blocks over there and stack 3 white blocks over here” was answered incorrectly 67.8% of the time for FN children and 39.4% of the time for NFN children, almost a 30% difference in performance in favour of the NFN group. Even though this test item did not exhibit significant DIF, it is worth exploring from a language perspective.

On average, the NFN group used longer length of utterances (Mean Length of Utterance) on subtests that required complete sentences (Answering Questions, Repeating Sentences) instead of single words except for the Describing Actions subtests. The Mean Length of Utterance (MLU) for the responses in Tables 8 and 9 was 6 words for the NFN group as opposed to 4.6 words for the FN group. The FN group was much more descriptive, using a longer length of utterance only when expressing actions or verbs through a picture description task. This was evident with one verb only: “crawling.” The MLU for the FN group on the responses in Table 10 was 5.2 words as opposed to 2.8 for the NFN group.

Overall, the data analysis of this study demonstrated significant performance differences. Even though there were significant differences in overall performance between the FN and NFN groups, the Repeating Sentences, the Following Directives, the Answering Questions, and the Sequencing Events subtests did not detect significant DIF. Only seven items out of a total of 73
items demonstrated a possible bias through DIF analyses. Five items exhibited non-uniform DIF (4 sounds and 1 language structure) and two items exhibited uniform DIF (2 sounds) in favour of the NFN group. Six of the seven items were dealing with the phonological or sound system, and the seventh was the only language item showing moderate levels of non-uniform DIF. Error and response analysis illustrated that the FN children were much more descriptive when talking about action words or verbs, in particular the verb “crawling.”
CHAPTER FIVE: DISCUSSION AND CONCLUSIONS

This chapter answers the research questions posed, connects the study’s findings to the literature, provides recommendations to the stakeholders, and suggests future research.

The purpose of the present study was to determine if there were test performance differences between FN and NFN SK children on an articulation, expressive, and receptive language screen. Specifically, is the FPSLST-2 an effective and meaningful speech and language measure for FN children? In addition, if there were indeed performance differences, this study posed further research questions as to why these differences might exist and what kinds of adaptations could be made to make this tool more effective for all learners, especially FN students in the Rainy River District.

Exploration into these questions involved the comparison of FN and NFN FPSLST-2 scores to determine mean differences between groups. Individual items within a subtest were analyzed with some detail with respect to descriptive statistics exploring the distribution and spread/range of scores for both FN and NFN students. Because the distributions and ranges of scores were meaningfully different for the two groups, independent sample t tests were run to explore whether these differences were significant. DIF analyses of individual test items of the six FPSLST-2 subtests were conducted to explore the presence of individual test item bias based on the significance of performance differences. MH-CHI and BD statistics were used to determine whether the DIF was uniform or non-uniform. Error analysis of both near significant and significant DIF items through a random sampling of 30 of each NFN and FN screens comparing FN and NFN children’s responses were inventoried (Tables 8, 9, & 10) to determine
differences between groups and trends within groups. The RRDSB Native Language and Curriculum coordinator, J. Jones, and I discussed the performance differences and suggested interpretations based on experience with the assessment tool, FN children and FN language, culture, and worldview.

**Research Question 1:**

*Are there speech and language screening items on the FPSLST-2 that demonstrate test performance differences or possible test item bias for FN and NFN children? If so, what items are they?*

The study found significant performance differences on all subtests between FN and NFN children using the FPSLST-2 (no adjustment for overall performance) and, further to that, seven test items exhibited statistically significant or near significant DIF (with adjustment for overall performance). The specific items are as follows.

Specific items on the FPSLST-2:

1. Repeating Sentences subtest

   *If she falls down, she might get hurt.* This item showed significant performance difference based on Pearson chi-square and near significant DIF.

2. Answering Questions subtest

   *What could you do if you forgot what [the teacher/your mother] said and you needed to remember?* This item showed significant performance difference based on Pearson chi-square and near significant DIF.
How can you tell if your shoes are on the wrong feet? This item showed significant performance difference based on Pearson chi-square and near significant DIF.

3. Describing Actions subtest

Picture description of a baby *crawling*: Moderate level of non-uniform DIF.

4. Following Directives subtest

*Stack 3 yellow blocks over there [point to a spot close to the examinee] and stack 3 white blocks here [point to a spot close to you].* This item showed significant performance difference based on Pearson chi-square and near significant DIF.

5. Articulation subtest

Moderate level of uniform DIF for glove and *flag* in favour of the NFN group.

Small level of non-uniform DIF for *zebra, truck, spoon, blocks*.

These items involve the following speech and language structures as interpreted by the researcher, a certified SLP.

1. Pronouns
2. Use of verbs versus nouns
3. Length of utterance or response
4. Phonology/sound system
5. Auditory comprehension/expressive skills
6. Compound, complex, or conditional sentences
Research Question 2:

What are the possible reasons that these screening items demonstrate different performance levels for FN and NFN children?

These items were discussed with the RRDSB Native Language coordinator to determine possible reasons for the performance differences. It should be noted that the interpretation of these differences is reflective of the Ojibwe spoken in the Rainy River District in Northwestern Ontario. Since the District houses 10 FN communities and close to 30% of the RRDSB student population is comprised of FN children on and off reserve, this analysis and interpretation is very much needed to support the strengths and needs of these children.

Interpretation of syntax and semantic differences. The Ojibwe language does not distinguish between gender forms in pronouns such as ‘he” or “she.” The word “wiin” is translated to s/he with no distinction between male or female. Other pronouns used in the Ojibwe language include “I, me, you, we, they, us, and them.” J. Jones reported that, as Peltier (2011b) also asserts, even though these children may not be fluent Ojibwe speakers, the FNED spoken may often take on the features and characteristics of their native language, thus providing a possible explanation for the elevated errors with pronouns.

In the English language, nouns are the primary syntactic structure, whereas the Ojibwe language is 80% verbs. In addition, in Ojibwe there are different affix markers attached to verbs when speaking about inanimate or animate objects as well as power features; therefore, a verb describing a person is constructed differently from a verb describing a toy. The verb in Ojibwe may also take on different prefixes and suffixes (affixes) depending on the context of the situation. For example, the verb “crawling,” which received a moderate level of non-uniform
DIF, could change its meaning and morphological makeup depending on who or what was crawling and whether it was crawling toward something or away from something. A single verb in the English language is used and recognized in most contexts with the additional morphemes marking verb tense such as crawl, crawls, is crawling, crawled, will crawl. It contains the same root word “crawl” and is followed by additional words to determine who or what is crawling and descriptor words (adverbs) to explain in what context. The word “crawl” in Ojibwe, according to the Ojibwe People’s Dictionary\textsuperscript{10} has the following list of \textit{single words} which describe the many different meanings of the word crawl:

<table>
<thead>
<tr>
<th>Ojibwe</th>
<th>English Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bagamoode vai</td>
<td>s/he arrives crawling; crawl to a certain place</td>
</tr>
<tr>
<td>babaamoodevai</td>
<td>s/he crawls about</td>
</tr>
<tr>
<td>bimoodevai</td>
<td>s/he crawls along</td>
</tr>
<tr>
<td>animoodevai</td>
<td>s/he crawls away</td>
</tr>
<tr>
<td>gizhiyooodevai</td>
<td>s/he crawls fast</td>
</tr>
<tr>
<td>ondoodevai</td>
<td>s/he crawls from a certain place</td>
</tr>
<tr>
<td>biidoode vai</td>
<td>s/he crawls here</td>
</tr>
<tr>
<td>biindoodevai</td>
<td>s/he crawls in</td>
</tr>
<tr>
<td>zhegoodevai</td>
<td>s/he crawls in a tight place</td>
</tr>
<tr>
<td>biindigeyoodevai</td>
<td>s/he crawls inside</td>
</tr>
<tr>
<td>maadoodevai</td>
<td>s/he crawls off</td>
</tr>
<tr>
<td>zaagidoodevai</td>
<td>s/he crawls out</td>
</tr>
<tr>
<td>inoodevai</td>
<td>s/he crawls a certain way, crawls to a certain place</td>
</tr>
<tr>
<td>giimooodoodevai</td>
<td>s/he creeps, secretly crawls</td>
</tr>
</tbody>
</table>

Based on the Ojibwe language and its makeup being predominantly verbs, as well as having 14 words to describe crawling, it is understandable that the FNED children could perform better or provide more varied responses on this task. It was also noted that the length of their descriptions included many of the adverbs that differentiate each word in Ojibwe such as “He is crawling away” or “crawling around.” Discussions with J. Jones revealed that the Ojibwe

\textsuperscript{10} The Ojibwe People's Dictionary is an online searchable, talking Ojibwe-English dictionary that features the voices of Ojibwe speakers. It can be accessed from http://ojibwe.lib.umn.edu/
language has many different forms of the word *crawling*: there is general crawling, crawling to certain place, who is doing the crawling; is it alive or not alive (animate or non-animate), learning to crawl, or creeping. This is the case with most verbs in the Ojibwe language. The FN group was much more descriptive as evident from the length of their utterances when using this particular verb as opposed to nouns which can be visualized in the responses in Table 10. Further research into the FNEDs spoken in the Rainy River District focusing on the descriptiveness and morphological makeup of nouns and verbs is warranted based on the findings of this study.

The words “there” and “here” within the request “Stack 3 yellow blocks over *there* [point to a spot close to the examinee] and stack 3 white blocks over *here* [point to a spot close to you]” are also ambiguous for FN children. In Ojibwe the word “there” has three direction markers: furthest away, next furthest away, and nearest, and “here” denotes closest to me, slightly less close to me, and the least close to me. J. Jones suggested, even though the examiner points to the place that they should be stacked, the message may still be confused based on the use of the words “there” or “here” in the same sentence. In terms of the literature and testing experience among SLPs, the confusion or lack of response could be attributed to auditory memory as well. The instruction was quite long and required storage of the information auditorily, then processing its meaning and creating a nonverbal but kinesthetic response.

Interpretations also took note of how the Describing Actions task was administered. Pictures were used, and a fairly straightforward request was made, “Tell me about this picture.” Other items that showed significant performance differences in favour of the NFN group were longer, more complex sentences that included conditional clauses or two-step instructions or double question markers. J. Jones reported that there are three kinds of sentences in Ojibwe:
complete, incomplete and interrogative. These three types of sentences should not be combined because each has its own set of rules.

With that knowledge, some of the sentences on the FPSLST-2 have conditional clauses combining an incomplete and an interrogative type of sentence. J. Jones suggested that an Ojibwe-influenced speaker may express item 14 on the Answering Questions subtest as: “Your shoes are on the wrong feet. How can you tell?” instead of the question “How can you tell if your shoes are on the wrong feet?” The former structured question reflects more of the rules of the Ojibwe language, where questions are very straightforward and only one question marker is included per sentence. Another question, item 15 on the Answering Questions subtest, which showed significant performance differences in favour of the NFN group, was the question, “What could you do if you forgot what [the teacher/your mother] said and you needed to remember?” This interrogative included two question markers which are not seen in the FN language spoken in the Rainy River District. According to J. Jones, this may have caused comprehension problems for the FN children. Again, based on the length and complexity of the question, delivered only through the auditory modality, auditory memory or auditory processing speed may also have influenced the outcome.

Even though the item, “How can you tell if your shoes are on the wrong feet?” did not show significant levels of DIF, it is interesting to note a popular response given by FN children to this question. Ten FN children responded, “A bear will come.” With further exploration into this response, it is typical for an FN parent to say this to their children if they put their shoes on the wrong feet. Similarly, an FN parent in the Rainy River District warns a child if he/she stays out late at night that “an owl will put you in his ear.” This exemplifies differences in worldview and cultural beliefs that are not shared between FN and NFN groups. Peltier, an FN SLP,
describes a common response when testing children from her community: A child will typically label a horse as “one toe” because, when hunting, the track markings a horse leaves resemble the shape of its hoof, which has one toe. The Ojibwe word for horse translates to “one toe” (Peltier, 2011a).

Based on the interpretation of the significant and near significant performance differences, there exist explanations based on differing language, culture, and worldviews of the FN and NFN groups.

**Interpretation of speech or articulation differences (phonology).** The sounds that showed moderate amounts of uniform DIF in favour of the NFN group, which means that the NFN group accurately produced these sounds more often than the FN group, were /v/ in the final position of the word and /fl/ in the initial position of the word. Exploration of these sounds in the Ojibwe language revealed that /r, v, f, l/ do not exist in the Ojibwe language, which offers reasons why these sounds were less likely to be produced as accurately by the FN group.

Interestingly, the sounds /n, k, ks/ all in the final position of words exhibited small amounts of non-uniform DIF. J. Jones reported that the /n/ sound is common when the Ojibwe speaker is delivering a command. For example, the word *leave* is *maajaa* in Ojibwe, but if you want to command someone to *leave*, you add the letter /n/ to the end of the word. In addition, he says that the Ojibwe language has hard sounds that are used to put emphasis on sentences. These hard sounds are /p,t,k,ch,s/. For instance in Ojibwe, the general word for *hit* is *bakite*, but if there is an accident where someone is *hit*, the /b/ changes to /p/, a hard sound, as in *pakite* to indicate to the listener that the situation is serious. There is no sound-changing rule in the
English language that aligns with this. The intonation/prosody or changes in the register of one’s voice provide that emphasis in the English language.

Based on this information, understanding the sound system of the Rainy River District’s FNEDs would be very important and helpful for interpretation purposes before embarking on a test that measures the accuracy of sounds in Standard English by FNED users. It may avoid remediating sounds that need not be remediated (Goldstein & Iglesias, 2001) or making a distinction between sounds used at home and sounds used at school. This notion fits into the claim that students should be taught to code-switch between their FNED and Standard English (O’Shanessy, 2012; Peltier, 2011b).

Gould (2008b) discusses the strong connection between culture and communication and comments on the responsibility of SLPs to decipher whether “inadequacy” in English language skills, as measured by language assessment tools, is the result of language pathology, bilingualism, or biculturalism. Language assessment in Aboriginal students can be confounded by various culturally relevant factors such as world knowledge, interaction styles, and the FN culture and history with which one grows up. Many researchers have commented that culture can affect the way the world is viewed, the method of learning, and the linguistic makeup of the FNED spoken (Ball, 2007, 2009; Ball & Bernhardt, 2008; Goldstein & Iglesias, 2001; Johnson & Wong, 2002; Toohill et al., 2012).

**Research Question 3:**

How can the FPSLST-2, both in content and in administration, be adapted or modified to be more appropriate for the FN learner?
A few very specific suggestions were made in the previous paragraphs which link to the rules, features, and vocabulary of the Ojibwe language. To summarize, these include:

1. Conditional or multi phrase questions in answering questions or sentence repetition tasks can be difficult for FNED speakers.
2. Question markers (who, what, where, when, how, why) in a sentence are used differently in the district’s Ojibwe language and have varied rules.
3. Specific vocabulary combinations may change meaning for the FNED student — consult with an Ojibwe speaker to review the tasks.

These suggestions could involve the addition of prompts as used in dynamic assessment in administering the tool rather than changing the whole makeup of the test. Being cognizant of your examinee’s language and culture could be a way of developing the specific prompts needed to dynamically assess an FN child.

J. Jones also reported that the Ojibwe language is spoken as if the speaker is talking in pictures or describing a movie in his/her head. He stated that the language translates events, actions, and stories into pictures. A test that includes pictures (visual) as well as verbal requests may be better understood by an FN child. Experimenting with hands-on materials as well as the auditory and visual modalities could reveal a more accurate picture of the learning capacity and skill set of an FN child. This is in agreement with the literature review done by Rasmussen et al. (2004), which found that most FN peoples tend to prefer more visual spatial learning as opposed to the verbal/auditory learning most common in standardized assessments and in Canadian classrooms. This could be tested by comparing children’s responses with verbal-only prompts.
and then add other types such as visual or kinesthetic and record any difference in comprehension or responses.

During discussion of the results of this study with J. Jones and through my work with both FN and NFN children, this screening tool and most speech and language assessment tools were missing a very important method of eliciting language and foundational literacy learning; namely storytelling. Dupree (1993) reported that teachers or practitioners who have used storytelling say that one of its strengths is that it allows teachers to accommodate all learning styles so that differentiated instruction and assessment become easier using this method. Brice (2004) and Palmer, Harshbarger, and Koch (2001) found that storytelling not only increases fluency and comprehension, it also builds vocabulary and writing skills (Isbel, Sobol, Lindauer, & Lowrance, 2004). Therefore, including this task within a language evaluation would give the examiner a multitude of information about syntax, vocabulary, story structure, and content. Most often, a speech and language evaluation asks questions that can be answered in one word or short phases; it rarely allows for the examiner to collect a longer spontaneous language sample which could be analyzed for all aspects of speech and language (articulation, sentence structure, vocabulary, mean length of utterance, comprehension, listening skills). Having the child tell his/her own story or having him/her retell a story that has been told to him/her is a very valuable piece of information about a child’s thinking and learning. This is consistent with the developers of the new assessment entitled Help Me Tell My Story, the study on narrative dynamic assessment by Gillam et al. (1999) and the Statistics Canada (2008) research that revealed FN parents regarded storytelling as an important language outcome.

According to Common and Frost (1998), Aboriginal parents “tend to communicate with their children while performing tasks together” (p. 26). As stated earlier, some researchers found
that Aboriginal children learn primarily through modeling rather than verbal explanation (Toulouse, 2008b), resulting in a focus on performance rather than auditory and verbal skills. Involving parents and community members in the classroom and in the assessments of their children in education, much like the AHS programs in Canada, could help practitioners better understand the speech and language outcomes of their assessments. Enlisting FN community collaboration to assist in interpreting and explaining responses such as “a bear will come” or “an owl will put you in his ear” would provide a link with educators and clinicians that may help ease the transition for FN families to participate in their children’s education and services outside their community. They might feel more culturally safe to participate in the assessment and treatment process if their participation in it were critical to the outcome. Help Me Tell My Story (Saskatchewan Ministry of Education, 2011), an oral language measure, supports this collaboration and is cognizant of the holistic view of the FN child.

Overall, many suggestions have been made to improve the effectiveness of the FPSLST-2 which highlight the involvement of FN families and communities in the assessment and interpretation of its results.

The FPSLST-2 follows the typical Eurocentric administration and scoring approach. Answers are scored as right or wrong, with little ability to prompt or scaffold. The ability to prompt and scaffold would provide the examiner with a better picture of the child’s thinking and learning style, which would indicate whether the concept has been acquired or, if not acquired, could ultimately guide next steps for goals of intervention. Because standardized testing tries to make sure that every child receives the same opportunities to demonstrate his or her knowledge, there is very little flexibility in standardized testing methods, as Toohill et al. (2012) note. In order for there to be more flexibility in a test’s scoring and administration, more training would
be necessary to ensure these options were delivered consistently among test administrators.

Currently, with the FPSLST-2, the examinee is not allowed to show his/her learning in different ways; it is just assumed that the skills are not fully developed, and this may mistakenly lead to a diagnosis of language delay. Incorporating dynamic assessment (Hasson & Joffe, 2007; Capacity Building Series, 2013b) gives all learners, not only FN students, an opportunity to demonstrate their learning in ways that seem most natural to them. In particular, students might be allowed to demonstrate their learning through hands-on, more kinesthetic tasks and/or a combination of verbal and modeling. Assessment using kinesthetic or hands-on tasks may include the observation of a child at play, documenting how the child problem solves, his/her vocabulary used, his/her understanding of basic concepts, or his/her ability to communicate socially.

In addition, the notion that making mistakes enhances learning has no place in standardized formalized tests. Using dynamic assessment which allows the evaluator to scaffold and prompt in the presence of errors, the process of learning would be revealed rather than the learning that results, which can be much more valuable when planning intervention. If a child scores 0 on an item in the FPSLST-2, the examiner assumes that he/she does not know the concept. However, if the examiner were able to probe or scaffold further, he or she might become aware that there is some form of conceptual understanding by the student and that the examiner need only introduce a small amount of information to solidify its full understanding in a variety of contexts. Most formal measures rarely allow for this; the FPSLST-2 is no exception.

Based on the findings, especially through error analysis, there was evidence that further probing or questioning of the student’s elicited responses could have made the students’ thinking more visible and clarified the level of structural, conceptual, and linguistic understanding. This concept could be incorporated as a series of acceptable and established prompts within test item
administration that allows for gradations of scoring differentiating a range of children’s abilities. Or, the examiner could simply record the prompts used and strategies observed with no change in scoring. The administration manual could include a list of “look-fors” or a place to track behavioral observations throughout the assessment. This knowledge would assist in planning intervention or provide suggestions for the educator in the classroom. Similarly, when interpreting an articulation test response where a sound that is deleted as opposed to distorted is tracked and rated as more severe, there is no distinction in scoring, but it subsequently makes a difference in the approach to intervention.

This method of assessment not only would make the student feel more successful and that his/her knowledge is recognized but also would assist the examiner in determining the learning that needs to take place next. It is an approach that seems to be gaining acceptance in education: the importance of assessment for learning as opposed to assessment of learning. The new Early Learning classroom in Ontario is slowly adopting this approach.

Peltier (2011a) also recommends that the teaching of complex and conditional sentences and multi-direction instructions are important for FN children because that is the language of schools and further education. It should be noted that it was earlier mentioned in this thesis that lack of education has contributed to FN peoples having issues of poverty, alcoholism, and unemployment (Brady, 1995). Peltier herself feels, as a member of her FN community as well as a member of the speech language pathology professional community, that her ability to switch codes, in appropriate situations has benefited her success in both worlds. Being aware of and understanding the FN worldviews, languages, and cultures and the modern scientific Eurocentric paradigm can be an asset. Similarly, as Kinew communicates “We must wear a moccasin on one foot and a sneaker on the other” promotes the importance of being comfortable in both worlds.
This was never more apparent than in Aikenhead and Mitchell’s account of Deborah’s story in their 2011 book, *Bridging Cultures: Indigenous and Scientific Ways of Knowing Nature*. Deborah, a member of a Navajo FN in New Mexico, was accepted to a university biology program. She did well in science in high school and felt that biology was closely linked to the natural world in which she had been brought up in the Diné worldview; this perspective was not shared by her university biology instructor. To provide just one example, Deborah was required to dissect animals although she grew up understanding that animals, among other life forms, were an extension of herself and that animals were spiritually connected. In Diné, there were proper protocols, prayers, and ceremonies involved in taking an animal’s life, and offerings were required to restore balance. Deborah faced this and many other conflicting worldviews, in time allowing herself to accept the existence of both perspectives without having to sacrifice one over the other (Aikenhead & Michell, 2011). This is what Peltier and Kinew meant by *code switching*: being willing to be in and comfortable with both worlds (Peltier, 2011b).

When looking at the demographic characteristics of the normative sample of the FPSLST-2, the test was validated on 705 children aged 3 years, 0 months to 6 years, 11 months, and 3% of the children were Native American. Native American may be a mixture of many different dialects, of which Ojibwe may be a very low percentage as compared to the sample used in this study: SK students in the RRDSB that comprised a total sample of 429 of which 73% were NFN and 27% were FN children.

**Limitations of the Study**

This study is not without its limitations. While this study compares FN SK children and NFN SK children in the RRDSB which is located in the most westerly part of the province of
Ontario, many findings may not extend to other FN communities in Ontario or across Canada based on the diversity of FNEDs and FN cultures in this province and country. Therefore generalizing the specific Ojibwe language differences and dialect findings beyond Northwestern Ontario is not recommended. However, as stated in previous research and this study, the recommendations to involve FN families in service provision and develop linkages and partnerships between school boards, higher education, and FN communities could be extended to many school divisions globally.

There are a number of speech and language screens that could have been used, but the FPSLST-2 was chosen because of the already existing data available from the RRDSB. It must be said that the data collected over the last 8 years with this tool has been very informative and useful for educators and professionals; however based on this study’s findings, further investigation into its usefulness for FN students is warranted.

It is possible that using a conversational method (Kovach, 2010) to discuss findings with FN community members outside the education system may have brought a broader FN worldview perspective to the data. The conversational method aligns with an Indigenous worldview that honours orality as a means of transmitting knowledge. Story is a relational process that is accompanied by particular protocol consistent with tribal knowledge identified as guiding the research (Kovach, 2009). Indigenous scholars within and outside of the Canadian context have referenced the use of story, through conversation, as a culturally organic means to gather knowledge within research (Kanu, 2002). This may be something to consider for future research.
In terms of methodology and results using the DIF analysis, it should be noted that, if every item in a test were biased against one group, then it would be impossible to obtain an accurate estimate of ability and so would be impossible to detect all of the bias – only the relatively most biased items would be detected. Additional information may be needed to be gathered in this case.

Implications and Future Research

Future research as a result of this study should include the adaptation of an existing speech language tool (possibly the FPSLST-2 since some preliminary information has been obtained) in collaboration with Rainy River District FN Elders and knowledge experts in FNED and Ojibwe language, culture, and spirituality, Seven Generations Educational Institute, as well as local SLPs and educators who have practiced in the District and are successfully engaging FN children.

The introduction of more variables measured in a similar study to include performance differences by gender and by FN living circumstance (on or off reserve) would be a worthy research project. Based on this study’s findings, a more in-depth analysis that looks at language structure, such as comparing the comprehension and expression of nouns and verbs of both FN and NFN groups, may be valuable. “Crawling” was the only language structure that exhibited a moderate degree of non-uniform DIF, which was why it was analyzed and translated in Ojibwe to determine reasons for the potential bias. It may be worthwhile for future research to segment and analyze a variety of Ojibwe verbs to determine if many words exist that have multiple meanings based on the addition of affixes.
With the full implementation of full day everyday Early Learning in the province of Ontario in 2014–2015, a research project that compares the development of FN children and NFN children in an inquiry play-based learning environment would be worthwhile based on the research on dynamic, non-standardized authentic assessment. Further to that, locally developed inquiry-based FN embedded curriculum to be implemented in the Rainy River District Early Learning classes would provide educators with much needed information such as authentic exploratory activities that have meaning for both the FN and NFN children. The AHS program could be a collaborating partner for this research project. Subsequent work could further incorporate similar and age-appropriate culturally embedded curriculum in all grades.

The results of this study may have an impact on intervention/therapy or classroom instruction. Possible changes in the way we assess FN children can also influence practitioners to question appropriate culturally embedded instructional and intervention strategies with FN children. The introduction of a preservice or postservice course for teachers, ECEs, and SLPs on the meaningful assessment, holistic inclusion and intervention, and classroom instruction of FN students would be proactive and prepare new educators and practitioners for their careers with diverse linguistic and cultural populations.

The RRDSB is involved in an action research project that this study’s results could impact. The First Nations, Métis, and Inuit Collaborative Inquiry (FNMI CI) is a project which has involved Ontario school boards with a large population of FN, Métis, and/or Inuit students who are facing academic challenges. In 2013-2014, the RRDSB had a project team that was working with two schools within the board. The primary goals of the research project were: Increasing community engagement of FN partners, increasing knowledge, understanding, and awareness of FN histories, cultures, and perspectives for all staff and students, and increasing
student achievement and self-confidence. In particular, the schools collaborated and communicated more with our FN communities to jointly work on projects within the school and within the FN communities. The plan was for the school to expose students each month to a different cultural teaching or custom as well as incorporate culture within the curriculum. One such lesson that has been hugely successful and engaging in the classroom is the making of bannock within a number sense and numeration lesson. Based on the findings of this thesis, future considerations for the FNMI CI may include studying the effectiveness of the methods by which the students are assessed and monitored throughout the inquiry process. Currently, as a result of this study, the 2014-2015 RRDSB FNMI CI will be replacing the traditional *Science Fair* with three schools embarking on a “Knowledge Sharing Fair” as outlined by Bousquet and Lafond (2009).

Finally, research that fully explores the linguistic and cultural influence of the Ojibwe language and FNED spoken in the Rainy River District would greatly benefit practitioners (SLPs, educators, and health and social service workers) in providing meaningful and appropriate services to their FN students and clients. Based on the linguistic and cultural inventory, a district-wide training could take place for all service providers to establish a foundational knowledge and understanding of our FN partners, families, and children. Although the training would be beneficial, ongoing collaboration with all partners is essential.

**Initial Feedback, with Future Research and Improving the Process in Mind**

The results and interpretations of the study have been discussed on three occasions with FN community members, school support staff, and administration of the RRDSB, Seven Generations Education Institute, service providers (SLPs) within the Rainy River District, and
educators from the AHS program. Some FN contributors were Ojibwe, FNED, and English speakers. There was representation from seven of the 10 FN communities and SLPs and educators delivering services to both the preschool and school-age population. Their input, questions, and possible adaptations to the FPSLST-2 will be very valuable for future research with this tool. The details of this feedback can be found in Appendix D.

The purpose and the history of the study were discussed with each group. There was an urgent need to study the way FN children are being assessed with the existing Eurocentric-focused speech and language tools. The statement that SLPs are not confident in the assessment results obtained is supported locally, globally, and by the national organization, CASLPA.

Overall, the groups were aware of the FN and NFN performance differences based on exposure to other standardized and universal tools used in education such as EDI and EQAO testing; however parents in the group were surprised by the size of the performance gaps with some subtests. It had to be clarified that the overall performance without controlling for ability levels was not a true indication of the test item bias and that it was only a reflection of different achievement scores, based on the potentially biased test, for the two groups. The fact that SLPs are not confident in the current assessment outcomes for FN children was a relief to many participants, since they felt that more items should have been identified as having test bias in favour of the NFN group. The groups found the data very interesting, but disheartening, and wanted to know what could be done to narrow or eliminate the gap in terms of speech and language; what were the next steps? Many of the FN participants have lived and worked on FN communities and were aware of the number of children potentially requiring speech language services. In some cases, it was a number one priority for their early childhood programs on and off reserve. The possible next steps were discussed with the group, and their input was requested.
After reviewing the FPSLST–2 with the feedback groups, the FN representation had a number of questions regarding some items and felt that the items were worded very differently than questions or statements made in the homes of FN children. The following is a list of preliminary test adaptations and speech language differences between FNED and NFN language speakers: questioning, vocabulary, and direction following. Even though there were specific items that showed DIF and near significant DIF, other items on the test were scrutinized by the group simply for the wording and language structure.

Some general comments noted:

1. The test had an abundance of nouns, and it should be “verbified” more.
2. Examiner instructions to the examinee were very wordy.
3. Both FN and NFN contributors felt that the following words were unfamiliar to both FN and NFN children in the Rainy River District: items 3, 11, and 15: **match, American flag, zebra.** In addition, using real objects may assist the children in recognizing the items so that the examiner does not need to give them a model, simply a prompt.
4. Based on the Ojibwe rules of sentence combining and the limitation of one question marker per sentence, many items in the Repeating Sentences, Answering Questions, and Following Directions subtests violate these rules.

Administration and Scoring Suggestions:

1. Books from *Turtle Island Voices* as the storytelling section may be an option.
2. The storytelling component could incorporate both the Sequencing Events and the Answering Questions type subtests.
3. The use of manipulatives in the Following Directives subtest was noted, but replacing the coloured blocks with indigenous animals of the district may increase comprehension for all children.

4. A prompting or scaffolding scoring/documenting system was supported.

5. The incorporation of observational assessment would be valuable.

6. Contributions and collaboration by FN Elders, families, and communities in the test adaptation as well as pre-assessment preparation, assessment, and post-assessment analysis and interpretation would be beneficial but difficult to fulfill.

Future research should include a much more in-depth analysis of the results, scoring, and method of administration of the FPSLST-2 which may employ an ethnological qualitative approach (conversational method) examining both interpretation and next steps in search of an effective method of assessing the speech and language skills of the FN children in the Rainy River District.

**Conclusions**

Research regarding the diversity of FNEDs as well as how FNED children perform on speech and language evaluations is minimal, particularly in Canada, and a review of the literature provides only limited descriptions of grammatical structure, phonological features, and specific examples of discourse. The results of this study are consistent with the findings by Peltier (2009) that Ojibwe phonology and sound systems are different and gender terms are nonexistent. She also noted differences in narrative discourse analysis; however the FPSLST-2 did not provide a large enough spontaneous language sample to compare the two groups. It is possible
that the addition of a storytelling or retell subtest would be beneficial for all children, not only FN students.

In the introduction of this study, it was stated that this preliminary work needed to be done prior to either modifying an existing measure of speech and language skills or developing a new assessment instrument that can be validated with FN children. Based on the collaborative interpretation of the results, an assessment tool created solely for FN students may not be required. The ability to work collaboratively with the Native Language and Curriculum Team (which includes access to Elders) within the RRDSB can provide immeasurable guidance for a practitioner. There is the opportunity to learn from our Rainy River District’s FN communities what is valued in terms of speech/language skills, linguistic rules, and phonological features, traditions, and customs. This may be the most important component in assessing and working with FN children and families. SLPs who invest in this learning and make it a part of the service delivery process will move closer to a trusting relationship that speaks to the cultural safety Ball and Peltier (2011) deem essential when working with FN communities, families, and children.

In addition, the manner in which we assess needs to change to reflect knowledge of our examinees. This might involve a standardized (scored) and/or flexible prompting hierarchy that allows the examiners to accurately determine the thinking and knowledge within all children, and that the examinees have the opportunity to demonstrate their knowledge and thinking in a manner that best suits their learning preference no matter their cultural or linguistic background. Again, this may include taking some time prior to the assessment to learn and understand the culture, worldview, and language/phonology of the FN groups served.

Introducing flexibility within the assessment tool by including differing prompts, documenting specific strategies used, hands-on/role playing demonstrations, or opportunities for
trial and error would also require a revamping of the scoring system so that these problem solving attempts are not only seen as learning, but can also help in guiding goal setting in intervention and instruction in the classroom. Dynamic and observational assessment in speech language pathology is slowly gaining ground in research and in practice.

The principles of Early Learning in the province of Ontario have made learning an inquiry involving collaborative and exploratory play as its foundation. Teachers and ECEs are beginning to give students agency, guide and scaffold as needed, hoping to create a generation of children that can solve problems independently and understand that making mistakes is essential to moving their learning to the next level. This can only benefit our FN children, since history and research have told us that this method of learning and teaching was common among Indigenous peoples and can often be preferred, but not assumed, among FN students today.

With 10 FN communities and 30% of the students being of FN descent in the RRDSB and the fact that the Aboriginal population is the fastest growing group in Canada, it is only right that SLPs, educators, and support workers develop a safe, comfortable, and knowledgeable environment for our fastest growing population. This can come only from education by the holders of that knowledge. Becoming familiar with the FN language, culture, and communities, developing partnerships in delivering services, providing a safe and trusting environment, and being willing to engage families in their children’s assessment and learning will strengthen the linkages between community, home, and school. The result may provide an effective and meaningful speech and language assessment for the FN students in the Rainy River District schools.

*Assessment is not a spreadsheet…it’s a conversation.*

Irmeli Halinen
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Appendix A

Features and Sounds of the Ojibwe Language Spoken in the Rainy River District

There are 3 types of sentences in Ojibwe:

1. A form: a complete sentence (independent clause). ex- I am running nim bimibatoo, you are running gibimibatoo, s/he is running- bimibatoo.

2. B form: an incomplete sentence (dependent clause). ex if I am running-giishpin bimibatooyal, if you are running- giishpin bimibatooyal, if s/he is running- giishpin bimibatood.

3. C form: interrogative sentence (information getters), all the who, what, where, when, why, and how questions, awenen, awegonen, aandi, aaniin, api, aniish, wiin, and aaniin.

Ojibwe language consists of mostly verbs, whereas English language is more of a noun-based language. This seems to be a barrier to translate from one language to the other. Speakers tend to struggle with switching from a verb-based language into more of noun-based language.

In Ojibwe, there are 4 types of verbs.

1. VAI Verb, Animate, Intransitive. Verb: an action is happening. Animate: the object that is doing the action is alive. Intransitive: the verb is just happening, it isn't happening to someone. For example, inaabi: s/he is looking/seeing,

2. VII Verb, Inanimate, Intransitive. Verb: an action is happening. Inanimate: the object that is doing the action is not alive. Intransitive: the verb is just happening, it isn't happening to something. For example, gimiwan: it is raining. Rain is a verb, it is inanimate and it's not raining on someone/something, it's just raining.

3. VTA Verb, Transitive, Animate. Verb: an action is happening. Animate: the object that is being talked about is alive. Transitive: the action is happening to someone. For example, niwaabamanaa: I see him/her. Notice the action is happening to him/her; this makes it transitive because another object is being talked about.
4. **VTI- Verb, Transitive, Inanimate.** Verb: an action is happening. Transitive: the action is happening to something. Inanimate: the object that the verb is happening to, is not alive.
   For example, **niwaabandaan**: I see it. Notice the action is happening to something; this makes it transitive.

**OJIBWE SOUND CHART**

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‘ A’ AA’ E’ I’ II’ O’ OO’

The double “oo” sound varies from dialect to dialect. In St. Croix, WI and Millac, MN, the “oo” is pronounced “oow” and the further north you go the more it will be pronounced “ohhhh.” Ojibwe has a nasalize “n”: bineshiinh (bird) and giigoonh are good examples. When pronouncing the examples, you will notice air coming from your nose, this is the nasal “n” sound. Some writers will capitalize the “n,” others will leave it out completely. Nasal “n” will often be said with these letter combinations: ns, nz, and nzh. The letters f, l, q, r, u, v, and x are not in the Ojibwe language. The glottal stop is: “you can hear the stop in these examples: ode” (heart) and a’aw (that). The glottal stop is often inserted between vowels.
Appendix B

Jason Jones’s Biography
RRDSB Native Language and Curriculum Coordinator

Jason Jones is a resident of Nigigoonsiminikaaning FN and a member of the Bizhiw clan (the lynx); his spirit name is Memashkawigaabaw, meaning *the one who stands strong*. He grew up not hearing the Ojibwe language, but had his native culture infused in him through his parents. He makes a point of telling people he has never seen his parents drink or do drugs, which was confusing because all he heard in the media was a portrayal of Ojibwe people in poverty and of lower socioeconomic status.

When he turned 19, he made the decision that if he was going to learn the Ojibwe language, he would have to teach himself. He began learning all the grammar terms from all the Ojibwe dictionaries he could find and created charts on how to use each verb. Eventually, he started translating books into Ojibwe for authors, David Bouchard being one of them, as well as recording audio for books. He is currently working on a series of books with Mike Parkhill. This project and some of his works can be viewed at www.sayitfirst.ca. These books have FN cultural relevance and are in English and Ojibwe, with phonetic transcriptions to help the nonspeaker pronounce the words properly. These appeal to the second language learner. He is also creating a children’s show, called Kokojones, which helps children learn Ojibwe as well as encourages healthy eating habits and the importance of reading.

Most recently he has been involved in the Math for Young Children research project through the Dr. Eric Jackman Institute of Child Study. The RRDSB has partnered with the researchers and are developing more relevant math lessons for the visual spatial learner. Jones’s role is to inject the Ojibwe language and culture into the lessons because Ojibwe language involves
more spatial reasoning, and Jones has witnessed that many FN children in the Rainy River District prefer the visual spatial method of learning and teaching.

In June 2011, he obtained his Native language Algonquin Specialist certification from Lakehead University. Currently his role at RRDSB is Native Language Curriculum Coordinator, in which he develops lessons for various classrooms. He has just completed a transcription lesson for the RRDSB’s grade 11 Ojibwe course in which the audio is taken apart word by word with proper grammar terms, which has never been done in Ontario schools before. Jason Jones has been dubbed “the young elder” by David Bouchard at a keynote speech Mr. Bouchard presented for all RRDSB staff (Bouchard, 2014). Jones’s work is well respected across Canada. His deep personal knowledge of the Ojibwe language and culture and his experience as an educator made him an invaluable consultant in interpreting the results of the DIF analyses.
Appendix C

Consent to Conduct Research in the Rainy River District School Board

This is the original consent to conduct research; however the methodology of the research has altered since the original plan.
APPLICATION TO CONDUCT RESEARCH IN THE
RAINY RIVER DISTRICT SCHOOL BOARD

Please refer to "Guidelines for Conducting Research in the Rainy River District School Board" to complete all sections of the
Rainy River DSB application form. Do not write "See Attached" on the form in place of the information requested.

Note: Please include a copy of your research proposal and all data collection instruments and protocols that will be used in
your research.

All materials must be submitted to the Director of Education for the Rainy River District School Board.

<table>
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<th>1. IDENTIFYING INFORMATION</th>
<th>Date</th>
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<tbody>
<tr>
<td>Name of Principal Investigator(s)</td>
<td>Ann Anderson</td>
<td></td>
</tr>
<tr>
<td>Institution/Agency</td>
<td>Rainy River District School Board</td>
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</tr>
<tr>
<td>Mailing Address</td>
<td>522 Second St East</td>
<td></td>
</tr>
<tr>
<td>Telephone Home</td>
<td>807-274-8726</td>
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<tr>
<td>Telephone Business</td>
<td>807-274-9655 Ext 5002</td>
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<tr>
<td>Fax</td>
<td>807-274-9931</td>
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<tr>
<td>E-mail</td>
<td><a href="mailto:annanderson@rrdsb.com">annanderson@rrdsb.com</a></td>
<td></td>
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</table>

Please Check All That Apply:
- Rainy River DSB staff: Yes ☒ No ☐
- Graduate Course Project
- Doctoral Thesis
- Masters Thesis or MRP
- Institutionally funded project (e.g., university, agency, hospital)
- Other (please specify)

Please list any other school boards to which you have applied:

2. TITLE OF STUDY: Are Language and Literacy standardized tests accurately measuring the skills of Aboriginal Children?

3. This is to certify that the proposal has been examined and meets:
   (a) the ethical standards for social and behavioural research;
   (b) standards for sound research design and methodology.

   Name of Supervising Authority (Please Print): Dr. Ruth Childs

   Position: Associate Professor, Dept of Human Development and Applied Psychology

   Institution/Agency: OISE - University of Toronto

   Signature: [Signature]

   Telephone: 416.978-1079

   E-mail: ruth.childs@utoronto.ca

4. For Rainy River District School Board staff only
   (if seeking approval to conduct research in your own school):

   School Principal Name (please print): ____________________________

   Signature: ____________________________

5. Approximate time periods for data collection:
6. OVERVIEW OF RESEARCH STUDY

(a) Brief description of the research topic and purpose:

The primary objective of this project is to determine what test items, if any, of the present language and literacy assessment/screening tools are differentially difficult for Aboriginal and Non-Aboriginal children and so may not accurately evaluate the language and literacy strengths and needs of the Aboriginal child. A further objective is to determine why these items are not accurately reflecting the abilities of Aboriginal children based on their learning styles, language, culture and worldview. The tool has been validated on non-Aboriginal SK students so we know that it is reliable for that population. This proposal is focused on the preliminary work that needs to be conducted prior to either modifying a particular measure of language and literacy skills or developing a new assessment instrument that then can be validated on the Aboriginal population. This study will begin the process of building a tool that is culturally and linguistically sensitive and that speaks to the learning styles, language, values and worldview of Aboriginal children, an endeavour that is long overdue.

(b) Statement of research questions or specific hypotheses:

For the first, quantitative phase of this study the guiding research question is:

1. Are there language and literacy screening items on the RRDSB Senior Kindergarten Screening tool that demonstrate test performance differences in Aboriginal and Non-Aboriginal children? If so, what items are they?

(c) Conceptual framework for your study:

The purpose of this sequential explanatory mixed methods study will be to first determine the test items on a typical Senior Kindergarten (SK) screening tool that are more or less difficult for Aboriginal children than for other children of comparable ability by obtaining statistical, quantitative results from screening a sample of 3 different groups of Senior Kindergarten children:

1. Aboriginal children living on First Nations Communities (FNC),
2. Aboriginal children living off First Nation Communities, and

7 SIGNIFICANCE OF RESEARCH STUDY

(a) Potential benefits and value of this study to education in general and RRDSB:

The accuracy of literacy and language ability estimates for Aboriginal children in the literature or in mandatory tests such as those administered by the Ontario Education Quality and Accountability Office (EQAO) is uncertain because the assessment tools used have not undergone reliability or validity testing with this population. Canadian Speech Language Pathologists (SLP) have long struggled with determining the language and literacy strengths and needs of First Nations (FN) children since their methods of assessment are not reflective of the culture, the language or the learning styles of Aboriginal people. Because of this, the Canadian Association of Speech Language Pathologist and Audiologists (CASLPA) has developed a First Nations Special Interest group to study issues such as service provision, accessibility, and culturally sensitive assessment and intervention methods for FN children and their families.

(b) Direct benefits of study to schools, students and/or staff (through participation and/or feedback):

Unfortunately, many young Aboriginal children who use First Nations English dialects are wrongly labeled as delayed or deficient by teachers and speech language pathologists (SLPs) because the assessment tools that are used to determine strengths and needs are deeply rooted in research involving children of European heritage with English or French as their first language (Ball, 2009). To date, there is no existing research that has investigated the reliability or validity of an assessment or screening tool that measures language and literacy skills of Canadian...
Aboriginal Children. What works to evaluate the skill level of Non-Aboriginal children does not reflect the cultural values, experiences, language and worldview of Aboriginal children, which may result in a biased diagnostic tool.

Approaches that support language and literacy development of Aboriginal children need to reflect their learning styles, cultural experiences, values, language, and worldview in order to appropriately define a language and literacy profile for these children. The research available on the language and literacy capabilities of Aboriginal children is scant at best. We do not have any evidence about the reliability and validity of the instruments for this population, so it is possible that the results are not accurate. As Ball emphasizes,

"It is worth stressing at the outset that there is an urgent need for research on Indigenous children's speech-language development, needs and responses to intervention... At the time of this writing there is no population based data for characterizing the speech-language strengths or difficulties of First Nation children." (Ball, 2009)

8 DESCRIPTION OF RESEARCH METHODOLOGY

(a) Research design (be as specific as possible)

This mixed methods study will use a sequential explanatory design. In the first, quantitative phase, numeric data will be collected first from screening 3 groups of Senior Kindergarten children. This data will be subjected to both descriptive and inferential statistical analyses. The goal of the quantitative phase will be to reveal between group differences in item performance. In the second phase, a qualitative semi-structured interview, which will be informed and developed through results of the initial quantitative phase, will seek to explain the between group differences in item performance. The rationale for this approach is that the quantitative data and results provide a picture of the research problem, i.e., on which screening tasks Aboriginal and non-Aboriginal children of like abilities perform differently, while the qualitative data and its analysis will refine and explain those statistical results by exploring informants' views in depth.

If between group differences are not evident in the quantitative phase of this study, a decision will then be made regarding the need for proceeding with the qualitative interview process. This will depend on the results and patterns revealed through analyses and interpretation in the initial quantitative phase.

(b) Participants required

Schools: All elementary schools

Preferred Schools (if any): 

Students: SK students only

Time Commitment Required for students: 1 hour

Teachers: SK teachers and Speech Language Pathologists

Other Board Employees: Communication Assistants

Please describe any special characteristics of the participants and the proposed method to identify potential participants.

(c) Data collection procedures (or describe process to retrieve existing data if applicable)

The data collection procedures are the routine annual SK screen done on all SK students in the board so no additional work is required of the RROSB staff. This study is hoping to use that same data over a period of 3 years to do a secondary analysis pertaining to the performance accuracy, relevance and cultural sensitivity of its administration, scoring and test items.

(d) Data collection instruments (List all measures to be used and attach copies. If commercial instruments are used, the investigator must use original copies of the instrument or attach that he/she has the copyright holder's written permission to duplicate.)
RRDSB Senior Kindergarten Screen

(e) Facilities required (e.g., location, size, research space, special arrangements)

No additional space or time is required of the teachers, CAs or students since this is an annual screen that is built into the assessment portfolio of each student to determine at-risk students and student needs within the SK classrooms.

9. ETHICAL CONSIDERATIONS AND PROTECTION OF PRIVACY:

NOTE Since the inception of the Freedom of Information legislation, it is not possible to isolate specific individuals or groups and provide names to the researcher. Information collected as a routine part of school records is not obtained with the expectation of disclosure to independent researchers. Therefore, it is not possible to provide that information with names attached. For example, if you are selecting students by some identifying characteristics (e.g., all girls taking math) and you need the names to select the sample, you will need parental consent as we cannot give the names out. As well, you will have to find a way to get the sample without undue demands on the school system.

(a) Personal information required from school board records (consent required).

No personal information is required but Self Identification records will need to be determined.

(b) Describe procedures to ensure anonymity and confidentiality:

The anonymity of Senior Kindergarten students will be protected by numerically coding each scored screen and subsequently aggregating the data for interpretation. The quantitative data entry requires a username and password and the scored screenings in paper form will be kept in a locked metal file cabinet stored in the primary researcher's office. Examiners, interview informants and school board administrators will be told summary and study findings, but in no way will it be possible to trace responses to individual students.

(c) Describe the method to be used to obtain informed consent (attach copies of all consent forms).

No consent required.

(d) What strategies will you use to ensure that your study will be free of bias and evaluation of individuals?

The teachers and CAs have been administering the tools for 7+ years and are very familiar with the test administration.

(e) Describe how participants will be prepared for and debriefed from involvement in the study:

Since this will be a secondary analysis only, the participants will continue to conduct the screening in the same manner as they have on an annual basis. Results and implications will be shared with administration of the RRDSB on completion of the dissertation.

(f) Describe security procedures (i.e., time frame for storage, removal of personal identifiers and data retention and disposal for such items as audio and video tapes, hard copy and electronic files):

The screening records will be kept as dictated by the RRDSB policies and procedures for retention of records. The anonymity of Senior Kindergarten students will be protected by numerically coding each scored screen and subsequently aggregating the data for interpretation. The quantitative data entry requires a username and password and the scored screenings in paper form will be kept in a locked metal file cabinet stored in the primary researcher's office. Examiners, interview informants and school board administrators will be told summary and study findings, but in no way will it be possible to trace responses to individual students.

10. PROCEDURES FOR PROVIDING FEEDBACK:
(a) Describe procedures for providing feedback to participants (e.g., a written report and/or an executive summary, a workshop or information session for parents, staff and/or School Council).

A written summary and/or executive summary of this investigator's dissertation thesis will be given to the Director of Education.

(b) It is required that the completed report be submitted to the Director of Education of the Rainy River District School Board and participating schools that request a copy. (Note: In the case of a thesis or dissertation, a summary of the completed paper is sufficient.)

| Expected date for submission: | July 5, 2013 |

I agree that this research will be conducted according to the policy and guidelines outlined by the Rainy River District School Board, in particular that no Rainy River District School Board schools, teachers or students will be identified in any report. Further, I agree to follow the ethical guidelines as embodied by the Tri-Council Statement on Ethics.

Signature of Principal Investigator: [Signature]

Date of Submission: Sept 1, 2011
Appendix D

Initial Feedback on the Results of This Study from FN Communities and Service Providers

Specific details of meetings and collaborations are as follows.

**Jan.–Feb. 2014:** The following people reviewed the draft thesis in various stages of editing.

Heather Campbell – Director of Education, RRDSB

Kevin Knutsen – Principal of School Support, RRDSB

Laura Horton – Director of Post-Secondary Education – Seven Generations Education Institute

Deborah Cousineau, Manager, Speech Hearing & Vision Services, Northwestern Health Unit

Nancy Jones – Elder – Individual discussion of the study’s findings.

**February 25, 2014:** First feedback session with Rainy River District service providers and FN community members with the purpose of reviewing the results from all six subtests as well as the DIF detected items. This meeting was held at the Northwestern Health Unit in Fort Frances, ON.

**People in Attendance:**

2 Student Success teachers, Seven Generations Education Institute

Native language curriculum coordinator, RRDSB

Aboriginal Early Learning Liaison, RRDSB

Aboriginal Curriculum Coach, RRDSB

Aboriginal Education Lead, RRDSB

AHS teacher, Aboriginal Head Start (urban), Fort Frances

SLP for North Words, Kenora-Rainy River District Preschool speech and language service system.
March 28, 2014: Based on the feedback from the group, a second meeting, held at the RRDSB, was organized that invited more FN front line workers and FN community members. This meeting was to introduce the findings once again for the newcomers and ask if any participants would like to assist the researcher in providing any adaptations/revisions based on the findings and the makeup of all subtests and the tool’s administration and scoring. The FPSLST-2 was demonstrated in its entirety to the group. Feedback was again collected on the study’s results, and a list of volunteers was gathered who were interested in giving the researcher more in-depth feedback regarding adaptations or revisions. Two or more individuals were given a subtest to bring back to their community or agency to gather input for next meeting, which was scheduled for April 16, 2014.

People in Attendance (including attendees at previous meeting)
FN ECE from a school that has been implementing FDK for 2 years; lives on FN community
FN Day Care supervisor (on-reserve) from Red Gut Bay FN; lives on FN community
Manager, Speech Hearing & Vision Services, Northwestern Health Unit, Kenora/Rainy River District.
Child Care supervisor (off-reserve) which serves many children from Northwest Bay FN
Child Care supervisor (on-reserve), Couchiching FN; lives on FN community
Program Manager, Gizhewaadiziwin Health Access Centre
FN parent with a child in Early Learning program living on FN community

April 16, 2014: Each group of contributors reviewed their respective subtest/s with their agencies and FN communities. Student Success teachers from Seven Generations Education Institute and Couchiching Child Care Supervisor worked on Articulation subtest. AB curriculum and AB-EL liaison and FN parent worked on Repeating Sentences subtest. Native Language and Curriculum Coordinator, Researcher and Program Manager, Gizhewaadiziwin Health Access Centre worked on
Following Directions and Answering Questions subtests. Preschool SLP, AHS teacher, FN ECE, Red Gut FN community child care supervisor worked on Describing Actions and Sequencing Events subtests.
Appendix E: Glossary of Terms

*Affix:* a morpheme (unit of meaning) that is attached to a word stem to form a new word (e.g., *undo* or *pretreat* or *coloured*).

*Articulation:* the act or manner of producing a speech sound.

*Auditory processing disorder (APD):* an umbrella term for a variety of disorders that affect the way the brain processes auditory information. Individuals with APD usually have normal structure and function of the outer, middle, and inner ear; however, they cannot process the information they hear in the same way as others do, which leads to difficulties in recognizing and interpreting sounds, especially the sounds composing speech.

*Auditory/verbal learner:* learning style in which a person learns through listening. An auditory learner depends on hearing and speaking as a main way of learning.

*Cluster reduction:* a speech sound error involving the reduction of two or three adjoining consonants (e.g., *boo* for *blue*).

*Co-articulation:* refers to a situation in which a conceptually isolated speech sound is influenced by, and becomes more like, a preceding or following speech sound (e.g., *lellow* for *yellow*).

*Compound sentence:* a sentence that includes two complete thoughts joined with a conjunction (and, the).

*Dependent clause:* one clause within a compound sentence for parallel presentation is dependent on the other (e.g., “When you eat properly, you will feel healthier”).

*Discourse:* a lengthy conversation exchanging thoughts and ideas.

*Expressive language:* the communication of thoughts and ideas verbally.

*Informal Language sample:* spontaneous speech sample not gathered from an unstructured activity (e.g., storytelling).

*Intervention:* a program developed as a result of assessment results.

*Kinesthetic:* a learning style that learning takes place by the student carrying out a physical activity, rather than listening to a lecture or watching a demonstration.

*Lisp:* speech error characterized by distortion of the /s,z/ sounds.

*Morpheme:* the smallest meaningful unit in the grammar of a language.

*Narrative:* story retell either written or oral, of an event with a sequence of events.

*Pathologizing:* to treat as a disorder or delay.

*Phonology:* the sound system of a language.

*Prosody:* the rhythm, stress and intonation of spoken language.

*Receptive language:* the understanding or comprehension of spoken language.
*Semantics:* the meaning of words or vocabulary of a language.

*Standardized/formal assessments:* a norm- or criterion-referenced test evaluated for validity and reliability of test results.

*Syntax:* the structure and rules that govern the way a language orders words in sentences.

*Visual spatial learner:* a learning style that prefers pictures, colours and maps to organize information.