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Learning through language: academic success in an Indigenous language immersion kindergarten

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Journal of American Indian Education. 56.2 (Summer 2017): p57+.

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Full Text:

What are the academic results of Anishinaabemowin (Ojibwe language) immersion education at the Mnidoo Mnising Anishinaabek Kinoomaage Gamig (MMAK) early learning kindergarten program? We describe the development of the MMAK within the context of larger language and education policies in the community and Canada. We also examine the academic development of junior and senior kindergarten students in the program. Using the Early Years Evaluation Teacher Assessment (EYE-TA), we assess participants' holistic development, including their cognitive development and English language acquisition. Although students show some delay in the first months of immersion education, by the end of the second year the average student shows age-appropriate cognitive and linguistic development. This promising outcome indicates that Indigenous language immersion does not negatively impact educational achievement or mainstream language acquisition; on the contrary, it likely provides benefits to students in these and other areas.

FIRST NATIONS CHILDREN IN CANADA today inherit a complex educational legacy. On one hand, they inherit a birthright access to Indigenous intellectual and educational traditions that span millennia. On the other hand, they inherit a legacy of colonial education that sought to destroy Indigenous cultures and languages, with devastating consequences (Truth and Reconciliation Commission [TRC], 2015b). Due to this legacy, the vast majority of Indigenous languages in Canada are now endangered (Campbell, 1997; UNESCO, 2014), and the high school completion rate of First Nations people living on-reserve is less than 41% (Statistics Canada, 2011; in TRC, 2015b). This rate is significantly lower than the high school completion rate of First Nations people living off-reserve

(60%) and less than half of the national Canadian average (88%) (Statistics Canada, 2011; in TRC, 2015b).

Currently, First Nations are moving toward increased Indigenous culturally sustaining and immersion education (Assembly of First Nations, 2010). The move comes at an important time, when the completion of the TRC has resulted in new calls to action for reconciliation in Canada (TRC, 2015a). Now more than ever, community-based practitioners and scholars of Indigenous education are confronting the dominant colonial system of education. They are rethinking education from a critical standpoint that integrates resistance, renewal, and reclamation and that embraces a culturally sustaining pedagogy (CSP) (Paris & Alim, 2014). CSP seeks to preserve and maintain the diverse multitude of languages, literacies, and cultures in our global society. Taking a firm position of sustaining pluralism in education is necessary. Advocacy for pluralism allows Indigenous immersion programs like the one described here to reframe education in ways that embrace Indigenous ways of knowing and being. For far too long an assimilationist monolingual and monocultural education has been defined as the standard approach in First Nations across Canada and the United States (TRC, 2015b). Indigenous education systems in North America are increasingly resisting this monolingual standard (Hermes, Bang, & Marin, 2012). Instituting Indigenous language immersion (ILI) is an act of reclamation, strength, identity, and inherent sovereignty (AFN, 2010; Battiste, 2013; Morcom, 2013, 2014; TRC, 2015b; UNESCO, 2014; Osborne, Peck, Smith, & Taylor, 2011).

Numerous communities across North America have developed ILI programs for their languages. Of note, the communities of the Mi'kmaq Kina'matnewey in Nova Scotia have seen their language move from endangered to vulnerable status according to UNESCO's evaluation criteria; they have also achieved a high school graduation rate of 87.7% through CSP and ILI education (Battiste, 2013; TRC, 2015b; UNESCO, 2014; Osborne et al., 2011). ILI programs have also been developed for Inuititut (Bougie, Wright, & Taylor, 2003; Louis & Taylor, 2001; Wright & Taylor, 1995), Hualapai (Watahomigie & McCarty, 1994), Blackfoot (Kipp, 2000), Arapaho (Greymorning, 1995), Mohawk (Agbo, 2001; White, 2015), Navajo (Lockard & de Groat, 2010), and Maliseet (Perley, 2011), among others (Ball, 2007; DeJong, 1998; Demmert, 2001; Grenoble & Whaley, 2006; Guevremont & Kohen, 2012; McCarty, 2003; Morcom, 2013, 2014; Preston, 2016). ILI programs are found worldwide, with the longest-running and most well-known examples established in New Zealand and Hawai'i (Ball, 2007; DeJong, 1998; Greymorning, 1995; Guevremont & Kohen, 2012; Harrison & Papa, 2005; McCarty, 2003; McIvor, 2005; Singh & Reyhner, 2013; Wilson & Kamana, 2011).

Indigenous Language Immersion and Academic Outcomes

Studies of these specific programs, as well as generalized studies of the academic impacts of ILI, indicate that ILI has positive impacts on students' academic and linguistic development. These studies are important because a common concern about ILI is that it will negatively impact students' ability to learn vital content and develop sufficient academic fluency in the mainstream language (Bournot-Trites & Tellowitz, 2002; White, 2015; Wright & Taylor, 1995). The impact of immersion on academic development is not just a concern for ILI but is a consideration for immersion education globally (Bournot-Trites & Tellowitz, 2002; Genesee & Jared, 2008).

Research on literacy and numeracy as well as general academic success in ILI have shed light on the question of impact. With respect to specific literacy and numeracy development, students in ILI consistently show delayed literacy development initially but then catch up and even surpass their peers, with transfer of literacy skills from the immersion language to the mainstream language (Raham, 2010; Osborne, Caoette, Qumaaluk,

& Taylor, 2009; Wright & Taylor, 1995). With respect to general academic outcomes as measured through standardized test results and high school graduation rates, studies of ILI programs show positive outcomes (McCarty, 2013; Preston, 2016; Wilson & Kamana, 2011; White, 2015). As Wilson and Kamana (2011) write, "programs that use the Indigenous language and its heritage to an exceptional level, including full immersion... produce the same (or better) results in the nationally dominant language and academics as standard English-medium programs... for Indigenous students" (p. 51). In Canada, Indigenous students who speak an Indigenous language tend to do better overall in school and have higher high school completion rates than nonspeakers, and this effect is magnified if students also learn the Indigenous language in school (Guevremont & Kohen, 2012). This outcome is consistent with what we know about language acquisition and bilingual education generally, and in particular is in keeping with Cummins's Threshold Hypothesis. Cummins (1976, 1979) states that once learners achieve a threshold of bilingual competence with fluency in one language, ILI will not produce negative consequences; and once students achieve fluency in both languages, bilingualism will produce positive cognitive effects. Negative cognitive effects occur when students develop low levels of competence in both languages (Cummins, 1976, 1979; Lasagabaster, 1998; Lindholm-Leary & Howard, 2008; Wilson & Kamana, 2011).

Still, ILI is not a panacea and is not without risks. ILI programs often serve communities that have significant social and economic challenges. Students in such communities are at risk of lower academic performance and school success (Ball, 2007; Guevremont & Kohen, 2012; Wilson & Kamana, 2011). Furthermore, the intergenerational trauma of residential schools impacts the success of ILI and CSP. Certainly:

It is not surprising that, faced with terrible conditions and mostly ineffective teaching, many students left [residential] school as soon as they could. A 2010 study of Aboriginal parents and children living off-reserves found that the high school completion rate is lower for residential school students (28%) than for those who did not attend (36%) (TRC, 2015b).

Because of their experiences, some survivors may not see the value of formal education, even in an Indigenous context (Ball, 2007). They also may not be able to pass on strong academic English or Indigenous language skills to their children due to their own limited educational experience or punishment for speaking their language while at residential school (TRC, 2015b). Cummins's Threshold Hypothesis predicts that students with limited proficiency in their first language, whether in English or an Indigenous language, may not benefit from immersion (Cummins, 1976, 1979; Lasagabaster, 1998; Lindholm-Leary & Howard, 2008; Wilson & Kamana, 2011).

In some communities, existing educational, economic, and social issues, coupled with a lack of funding for education and challenges in school administration, have resulted in poor educational outcomes for students in both mainstream and ILI programs (AFN, 2010; Guevremont & Kohen, 2012; Kipp, 2000; Morcom, 2014). Low high school graduation rates and post-secondary attendance rates, coupled with low speaker numbers, can result in a lack of trained teachers, administrators, and curriculum developers (Wilson & Kamana, 2011). Funding and staffing shortages often mean that students must transition at some point from immersion to mainstream language schooling, and the transition can significantly and negatively impact learners in areas of Indigenous language acquisition, academic achievement, and self-esteem (Bougie, Wright, & Taylor, 2003; Guevremont & Kohen, 2012; Wilson & Kamana, 2011; White, 2015). For these reasons, longitudinal studies that monitor development during and after immersion education are vital.

The MMAK Within Indigenous Early Childhood Education and Immersion Models

The MMAK, an enrichment strong bilingual education (immersion) program, is an example of CSP and ILI early childhood education. Children arrive at the program with limited or no knowledge of Anishinaabemowin, and they are exposed to the language for the whole day. The program goal is additive bilingualism, or fluency in both Anishinaabemowin and English (Hornberger, 1991; Osborne et al., 2009). Within the larger field of language education and bilingual education, strong bilingual education is frequently compared to weak bilingual education, where students arrive at school primarily speaking their Indigenous language, which is used to transition them to the mainstream language classroom (Hornberger, 1991; Osborne et al., 2009).

Other approaches in the sphere of bilingual, immersion, and language education involve the concurrent use of both languages in the classroom and language teaching, where learners are directly taught the structure, function, and vocabulary of the language (Morcom, 2014). While a detailed discussion of all models is not within the scope of this article, it is important to note that they fall along a continuum. Programs may vary in how they execute similar models; in other words, two classrooms that use immersion may incorporate very different pedagogies and curricula (Hornberger, 1991). This diversity is a benefit, since CSP and ILI at their best vary to reflect the cultural values, norms, and intellectual traditions of the communities they serve (Preston, 2016).

The MMAK Model: Development and Approach

The MMAK is part of a larger move to revitalize the Anishinaabemowin language on Manitoulin Island. At the heart of Anishinaabe traditional territory in Lake Huron, Manitoulin Island is home to numerous First Nations. Six nations--Aundeck Omni Kaning, Sheguiandah, M'Chigeeng, Sheshegwaning, Whitefish River, and Zhiibaahaasing--have come together under the umbrella of the United Chiefs and Council of Mnidoo Mnising (UCCMM). While Anishinaabemowin is not currently considered an endangered language (UNESCO, 2014), in the UCCMM's member Nations, only 8% of residents speak it at home while 95% believe it is important to learn the language (Pitawanakwat, 2013). To increase the use of the language in the communities, the UCCMM developed and formalized their Anishinaabek Language Declaration in the fall of 2011. The declaration asserts the right of access to the language and the intent to offer access to all services, including education, in the language to all member Nations' citizens by 2030 (UCCMM, 2013).

Following the declaration, planning commenced to develop and run the MMAK through the UCCMM's affiliate Kenjgewin Teg Educational Institute (KTEI). KTEI has been offering educational programs since 1994. All programs are based in Anishinaabe knowledge and culture. The Institute has developed the Anishinaabe Odziwin (living language and culture) cultural standards, which are a set of guidelines and goals to help students and staff develop as Anishinaabek people (KTEI, 2016). KTEI offers programming at the elementary and secondary levels as well as post-secondary programs in partnership with mainstream colleges and universities in English and Anishinaabemowin. The institution has a large staff of educators. Community members, elders, and parents at both KTEI and in the community have also helped MMAK develop. Community engagement is vital since, as Preston (2016) points out, the tremendous diversity of Indigenous peoples in Canada means that no "one size fits all"

model will serve all language immersion programs.

Parents and community members need to take an influential role in the development, promotion, and administration of the early learning programs within their community and thus ensure that the community's culture is reflected in individualized programs and an integrated curriculum that are centered on the mental, physical, spiritual, and emotional needs of the Aboriginal child (Preston, 2016). UCCMM support of the MMAK is directly responsive to the TRC's Call to Action 62, iii: "Provide the necessary funding to Aboriginal schools to utilize Indigenous knowledge and teaching methods in classrooms" (TRC, 2015a).

The MMAK began in 2013 when 12 students entered the junior kindergarten level (JK). In 2014-2015, the program expanded to include JK, senior kindergarten (SK), and a language nest for preschoolers. The school is located in the Ojibwe Cultural Foundation building on M'Chigeeng First Nation. This location is central for all of the UCCMM's member Nations and is within walking distance of KTEI's main campus. Children who live far from the school, particularly those in other First Nations, have access to bussing to allow them to attend.

Currently, the MMAK is considered a pilot project, and financial constraints limit it to the primary years (JK to Grade 3). After Grade 3, students transition to the local First Nations English-medium schools in their communities. These schools also engage traditional pedagogies and consistently integrate Anishinaabe culture and knowledge, but rather than employing immersion, students are taught the language in Anishinaabemowin classes. To help students transition to English-medium schools, the MMAK teaches JK-Grade 1 in Anishinaabemowin, and then introduces English slowly; Grade 2 is taught 80% in Anishinaabemowin, and Grade 3 is taught 50% in Anishinaabemowin and 50% in English. This graduated model is based on previous research that indicates that a sudden transition between languages can be detrimental to students' educational and personal development (Bougie, Wright, & Taylor, 2003).

Teacher Attributes and Pedagogy

A large part of the success realized in the MMAK to date can be attributed to certified teachers in the program who possess strong teacher qualities and pedagogical skills. According to Bishop, Berryman, and Richardson (2002) and McGee and Fraser (2001), effective teachers possess core teaching or pedagogical qualities including:

a depth of knowledge about subject area, passion for what they teach, a strong desire to share knowledge, a clear philosophy of teaching and teaching goals, a commitment to developing students' understanding and growth, use of non-confrontational behaviour management strategies, a genuine interest in students as individuals, provision of high quality feedback, comforting and challenging communication of high expectations, and continual reflection on their own teaching. (p. 68)

Not surprisingly, teachers in the MMAK exhibit these attributes. The authors of this paper observed these teacher effectiveness factors in many classroom visits.

MMAK teachers conduct themselves in a professional manner to make a positive difference for students and families. In addition to their work in the classroom, they teach hands-on Anishinaabemowin language learning in family-based settings in the evenings and on weekends. They also colead monthly parent meetings. The teachers are patient and caring with students and welcoming to all parents and visitors. They possess effective pedagogical qualities; for example, they plan and prepare inquiry stations, documentation and assessments, and they use a play-based pedagogical model that was implemented throughout all Ministry of Education schools in Ontario in 2014. Teachers use effective behavior management, such as a problem-solving approach that encourages students to work collectively to resolve conflicts through understanding and empathy. The teacher's role is that of a facilitator, observer, and documenter. The teacher continually questions children in ways that incite further thought and action while students are playing. For example, as we observed, a question to a child in the building block centre can be as simple as "Aaniish waa zhichige'in?" (What are you doing?) The child responds with an answer such as "Nishke shkode daabaan maaba" (Look, this is a train) while pointing to his or her train made with wooden blocks. The child drew his or her learning and then explained the picture of the train in front of the class using primarily Anishinaabemowin with sporadic English. This learning time was documented by taking pictures of the structure. The documentation contributes to the depth of the learning gained by the child from his or her self-selected investigations and by making children aware that their efforts are important and valued. Recorded visual and audio documentation provides information about children's learning and progress that cannot be demonstrated by typical tests and checklists.

The teachers use the heritage language continuously, in context, whether in the form of a greeting in the morning, teaching math at the circle, instructing letters and sounds at the literacy centre using sticks, playing outdoors under the trees in a student-made fort, participating in physical education, or having a hot lunch and snacks together. As an example, during the daily routines and rituals, which include smudging with sage, all students gather together in circle-time so they start the day in a good way. They recite the Anishinaabemowin thanksgiving called, "Mii manda enweying" (This is who we are), a preamble developed by the United Chiefs and Councils Elder's Council; sing hand drum songs, such as the water song, that have been handed down through the generations; and share who they are, where they come from, and how they are feeling. Students can introduce themselves in the language such as: "Carter ndishnikaz; niwin ndaa zaaboongis, M'Chigeeng ndoon jibaa. Sherry miinwaa John ngitziimak, ngi chi nendam nongwa" (My name is Carter. I am four years old. I am from M'Chigeeng. My parents are Sherry and John, and I am happy today.) They may bring in items to share, show their drawings, or speak freely with the teachers, who ask guiding questions of the children in their language. These types of questions or comments to the children help them over time understand the heritage language in context, and they in turn start to use the new vocabulary in the language. Having two teachers and additional speakers from the communities in the school is critical so that students hear the language in a rich way by processing and engaging in dialogue frequently and in context. An example we observed was a teacher saying "gojiing kaa zhaami" (Let's go outside). The students were then able to use this vocabulary and sentence structure, showing communication skills in their heritage language.

The teachers' approach aligns with Anishinaabe teaching practice, which is as much as possible child-initiated and child-led. The time schedule is less structured than many schools (no bells) and risk taking is encouraged. In this environment, children have an element of control over their learning environment, experience real life problem solving, and develop responsibility, pride, and a sense of cooperation. Traditional Anishinaabe education involves learning through trial and error and acute observation of the environment; these methods invoke natural curiosity and learning

within the safety and careful watch of loving caregivers, extended family, and community. The teachers are very proficient in immersion methods and use an oral language-focused approach for comprehension, understanding, and vocabulary development with the children.

The MMAK teachers are passionate about their work. Despite a heavy workload, training challenges, and time constraints, the teachers focus on supporting the children and ensuring the survival of the Anishinaabe language and culture. They share a clear teaching philosophy and teaching goals. Experiential learning, hands-on methods in all curricular subjects, engages students in doing rather than in studying. Inquiry-based learning ensures children have a sense of discovery, wonder, and awe in the learning process. Teachers also focus on holistic and integrated learning--a single lesson using an interdisciplinary approach that can meet objectives in more than one subject area. For example, a visit to the river or picking medicines during the spring and fall in the local woods meets curriculum expectations in physical education, social studies, and science. A theme of environmental stewardship across subject areas means that students learn about the environment, for the environment, and in the environment. For example, students study and pick plants, such as zhngobiins (juniper), which is used during flu season, or they plant a garden of beans, tomatoes, and strawberries. These themes are in keeping with the sacred laws of the Anishinaabe, who are caretakers for Mother Earth. In aesthetic terms, the indoor classroom and the playground feature natural and recycled materials with a focus on local environment and Indigenous art. Students spend a great deal of time learning on the land; fieldtrips engage them in seasonal outdoor cultural practices such as fishing, medicine picking, playing Indigenous games (lacrosse, doubleball), and producing maple syrup.

The MMAK pedagogy is inspired by the Reggio Emilia approach (Malaguzzi, 1998), which has been adapted to suit Anishinaabe pedagogy. Rather than preparing lesson plans beforehand, teachers guide learning based on the children's interests by creating spaces for educational exploration. They integrate graphic arts and focus on cognitive, social, and language development. The goal is for the children to become active participants in learning, engaging all their senses and developing the ability to discover, question, and grow as learners. The role of the teachers in this distinctive learning environment is to move from instructor to facilitator, providing a safe and nurturing setting so that children can discover, interact, and interpret the world around them with a sense of curiosity and wonder.

Family and Community Attributes and Pedagogy

Research on other Early Childhood Education (ECE) immersion programs indicates that a family-based approach with Elder support enhances success for ILI and CSP programs (Aylward, 2009; Chodkiewicz, Widin, & Yasukawa, 2008; Guillory & Williams, 2014; Preston, 2016). MMAK families contribute to an effective home-school partnership. Parents and caregivers participate in field trips and classroom events, and teachers create relationships with whole families, encourage cooperative problem solving, and promote respect for everyone who enters the classroom. Their partnership reflects respect for land, language, culture, and traditional spirituality, affirming the importance of an Anishinaabe worldview that values interrelations. Elders and knowledge keepers visit the classroom regularly, teaching about ceremonies, drumming, winter stories, traditional medicine, and other traditional knowledge. Visitors teach Anishinaabe content using Anishinaabe pedagogies, and since many are fluent (even first-language) Anishinaabemowin speakers, students can experience fluent speech in conversation.

Research with the MMAK

Since the MMAK is a pilot project, parents, teachers, and administrators requested that we engage in research to inform program development and to share insights with other communities who are exploring ILI. Our research goals are threefold: (a) to assess students' acquisition of Anishinaabemowin as a second language, (b) to assess students' cultural pride and personal self-esteem as young learners, and (c) to assess students' academic development to ensure the program meets their learning needs. In this article, we focus on the children's academic development. Assessment of participants' Anishinaabemowin language development is detailed in Morcom and Roy (2017), and details of students' self-esteem development are discussed in Morcom (forthcoming). The research will continue until at least 2018-2019, when the current cohort of students will complete Grade 3, after which they will transition to an English-medium school.

Positionality

We are connected to this research through academic interest and personal relations. Anishinaabek kwe Stephanie Roy of the Crane clan has been a researcher, doctoral student, executive director, parent, and governing council member of KTEI. She is a lifelong resident of M'Chigeeng First Nation in the heart of Manitoulin Island, where the total population of approximately 10,000 people is about 50% Native and 50% non-Native. Lindsay A. Morcom is Anishinaabe Metis and a member of the Bear clan. She is a professor of education and coordinator of the Aboriginal Teacher Education Program (ATEP) at Queen's University. KTEI and ATEP have a long-standing relationship, as KTEI provides space and support for the Manitoulin-North Shore community-based ATEP program. In addition to coauthoring articles on the MMAK, we work closely together on the management and delivery of ATEP. We are proud of our Anishinaabe heritage; we share a personal commitment to work for the preservation and propagation of our language and to identify best practices for the education of our children and all other Indigenous children. This research is part of a multifaceted longitudinal study funded by an Insight Grant from the Social Sciences and Humanities Research Council of Canada (SSHRC).

Ethical Considerations

In keeping with the principles of ownership, control, access, and possession (OCAP) (First Nations Information Governance Centre, 2016), this research was developed in collaboration with the MMAK teachers and community members. The research plan was approved by the Queen's University General Research Ethics Board. Prior to publication in any form, the results have been presented to the families, teachers of the MMAK students, and the wider community. Findings have also been presented to the chief and council of M'Chigeeng First Nation, where the MMAK is located. Because our study participant pool is so small, we do not include specific identifying or performance information about any participant in any publication. In our analysis and results, we only discuss trends within the participant pool.

Methodology

Participants. The participant pool for the study included 12 JK students--seven boys and five girls--all of whom are First Nations and living on-

reserve. All started school with the MMAK in September 2013; we refer to this cohort as Cohort A. None spoke Anishinaabemowin as a first language, and none had attended language nests or been formally educated in Anishinaabemowin prior to joining the MMAK. The children were tested in Spring 2014, when all were four or five years old. In the 2014-2015 academic year, three of Cohort A left the school, and one research participant, a non-Indigenous boy, joined the school in February 2015 at the SK level. At the conclusion of the 2014-2015 academic year, Cohort A included 10 students--seven boys and three girls.

Five study participants joined the MMAK in the 2014-2015 academic year at the JK level; we refer to this group as Cohort B. Cohort B included four students--three girls and one boy--all First Nations and living on-reserve. Cohort B also includes one non-Indigenous boy who joined the MMAK in February 2015 at the JK level. Like Cohort A, none of these students spoke Anishinaabemowin as a first language, and none had been formally educated in the language prior to joining the MMAK. All participants were in good overall health with no known physical or learning challenges.

Purpose and research question. The research sought to identify whether ILI in the MMAK negatively or positively impacts students' academic development, as measured using the EYE-TA.

Procedure. Academic development was evaluated using the EYE-TA, which was administered once per year in the spring by a research assistant. The research assistant, who was trained to administer the EYE-TA, is a qualified teacher who works as an educator with KTEI but who is not one of the regular MMAK teachers. The tests were individually administered to each child. The EYE-TA requires the child to perform specific tasks; performance is rated on a scale of one to four, according to specific set criteria. The study used EYE-TA because (a) it is used at other UCCMM schools and other schools in the region; (b) rather than focusing only on cognitive development, it evaluates children on a holistic basis that is consistent with Anishinaabe values; (c) it compares children to a larger pool of similarly-aged children, rather than comparing them with classmates of different ages; (d) it is appropriate for holistic evaluation in a play-based learning environment; and (e) the class and individual child reports that are produced are clear, practical, and useful to parents, teachers, and researchers.

The EYE-TA evaluates students in the following areas (Early Years Evaluation, 2016):

- * Awareness of self and environment: a child's understanding of his or her environment and the ability to make connections between experiences in school, home, and the community
- * Social skills and learning approaches: a child's ability to pay attention during learning activities, interact with peers, and behave according to classroom expectations
- * Cognitive skills: basic numeracy, pre-literacy, and problem solving skills
- * Language and communication: a child's understanding of spoken language and use of expressive language
- * Fine motor development: a child's hand-eye coordination and ability to perform tasks requiring small movements
- * Gross motor development: a child's ability to use his or her arms, legs, and body to perform tasks requiring larger movements

Analysis. The EYE-TA scores were analyzed quantitatively. EYE-TA assessment data, along with each child's date of birth (to determine age in months and years) were entered into an online analysis program, which generated a report specific to each child as well as a general report on the progress of the class. Scores were reported numerically for each child in each area. A score above 2.00 is ranked at Tier 3, indicating age-appropriate development in a given area; a score from 1.00-1.99 is ranked at Tier 2, indicating that a child is experiencing some difficulty in that area and requires more targeted interventions; and a score from 0.00-0.99 is ranked at Tier 1, indicating significant difficulty and a need for intensive additional intervention (EYE, 2016).

By calculating the average scores for each cohort in each area, we determined whether the cohort was on average performing at or below age-appropriate expectations in each area. We also examined median scores and standard deviations to identify whether the averages were influenced significantly by outliers or whether all members of the cohort showed similar development.

Results

Across both cohorts, the average of the individual student scores at the JK level is on par with age-appropriate expectations in every area except the cognitive skills tested by the EYE-TA. Within the EYE-TA, cognitive skill includes basic math, preliteracy, and problem-solving skills. For example, children are asked to name letters and sounds, count numbers, and identify patterns. Note that we use the term cognitive skill to be consistent with the terminology used in the EYE-TA metric; when we say scores were below age-appropriate development in cognitive skill, this refers only to the EYE-TA metric and does not indicate that these children show any pathological cognitive deficit. In Cohort B, student average scores were also slightly below age-appropriate expectations in language and communication, which refers to a child's ability to understand and express him- or herself in spoken language (EYE, 2016). Table 1 shows Cohort A's average and median scores at the JK level as well as the standard deviation in the scores. Table 2 contains the same results for Cohort B in JK.

For both cohorts, the standard deviation in the category of cognitive skill is high, indicating a wide range of scores. While some students in each cohort scored high in cognitive skill, other students were experiencing some or significant difficulty. The standard deviation is lower across Cohort B in the area of language and cognition; two students scored at Tier 3, two scored at Tier 2, and none scored at Tier 1. Taking Cohorts A and B together, Table 3 indicates average and median scores for MMAK students at the JK level. (1)

In SK, Cohort A showed age-appropriate development in every area on the EYE-TA with respect to their average and median scores, as Table 4 shows.

The standard deviation remains high in the area of cognitive skill, as one student scored at Tier 1 and another scored at Tier 2. However, the majority of students (83%) demonstrated age-appropriate development in all areas. Table 5 compares average scores in all areas between JK (Cohorts A and B taken together) and SK (Cohort A):

Discussion

Academic results for the first two years of this program are encouraging. The radar chart in Figure 1 illustrates the development of Cohort A students in JK and SK, and Cohort B students in JK.

As Figure 1 shows, on average JK students in Cohort B were at Tier 2, or below age-appropriate expectations, in the EYE-TA area of language and communication. In JK, both cohorts were at Tier 2 in the EYE-TA area of cognitive skill. SK students were at Tier 3 in all areas, which indicates age-appropriate development.

Findings for language and communication: The ability to understand spoken English and express oneself in English. To test receptive language skills, students were evaluated for how well they understood instructions, engaged in conversation, and understood stories. To test expressive language skills, students were evaluated to see whether they were able to form full sentences that others could understand, and whether they could express how they were feeling. Receptive and expressive language skills in English are important because these children will be transitioning to English-medium school in Grade 4 and will need communicative fluency in English to thrive there. Importantly, positive outcomes can address local and wider concerns that immersion education in Anishinaabemowin or any other heritage language might hinder English language acquisition (Bournot-Trites & Tellowitz, 2002; Wright & Taylor, 1995).

Our data show that SK Cohort A students learning in Anishinaabemowin exhibit age-appropriate development in English language and communication skills. In JK, Cohort B were slightly below age-appropriate expectations in English language and communication, with an average score of 1.88. Cohort B scores fall in line with existing research, which indicates that children may experience a short period of adjustment in their language use when beginning ILI, but they quickly catch up to an age-appropriate level (McCarty, 2013; Preston, 2016; Raham, 2010; Osborne et al., 2009; White, 2015; Wilson & Kamana, 2011; Wright & Taylor, 1995). Our results indicate that attending school in an ILI setting is not detrimental to a child's language development in English. As Wright and Taylor (1995) state, "The common assumption that the use of the heritage language will negatively affect the acquisition of English skills is clearly false. In fact, there is evidence that heritage language instruction may result in better performance in English in the long run" (p. 241). In our study, in keeping with Cummins's Threshold Hypothesis, the students demonstrate additive bilingualism--knowledge transfer from one language to the other--such that their overall linguistic development remains on par with age expectations (Cummins, 1976, 1979; Lasagabaster, 1998; Lindholm-Leary & Howard, 2008; Wilson & Kamana, 2011).

[FIGURE 1 OMITTED]

Findings for cognitive skills. Average scores for both cohorts were below age-appropriate expectations with respect to cognitive skill on the EYE-TA in JK. However, this rose to an average of 2.49 for Cohort A in SK and is one of their stronger areas of development. The rise in scores from JK to SK is also in keeping with findings of previous research: children in ILI often experience slowed development in literacy and numeracy in the beginning but normally catch up and often surpass their peers who have not been in ILI (Raham, 2010; Wright & Taylor, 1995; Osborne et al., 2009). As they develop fluency, children in ILI are able to transfer skills and knowledge acquired in one language to the other language.

Limitations

This study is subject to limitations. First, the sample size is small due to space and financial constraints on the program. Also, results may not be generalizable because the MMAK uses the distinctive and novel approach of an Anishinaabe-informed Reggio Emilia pedagogy with two gifted teachers. No two classrooms will ever be identical in their approaches or their outcomes. The results reported here cannot be immediately generalized across populations, but they meaningfully expand our limited knowledge of ILI models and can thus inform educational and financial policy for First Nations education (Chambers, 2014). The research reported here continues in a longitudinal study that will follow these students over at least four years to determine longterm impacts and contribute to the scholarship about language instruction and immersion methods.

Conclusion

What impact does Anishinaabemowin ILI in the MMAK have on students' academic development, as measured holistically using the EYE-TA? MMAK students' average scores demonstrate age-appropriate development by the end of their second year in ILI, and in fact, cognitive skill becomes one of the participants' strongest areas of development. This finding is significant because Indigenous children often exhibit disconcerting lower levels of school achievement compared to non-Indigenous children in Canada. Far from hindering students' academic development, ILI schooling may help them to flourish.

Our data contravene the common concern that ILI may have a negative impact on students' ability to respond to academic tasks presented in English and may hamper their English language acquisition (Bournot-Trites & Tellowitz, 2002; Wright & Taylor, 1995). The participants in this study demonstrate age-appropriate English language development by the end of their second year. Students in the MMAK demonstrate additive bilingualism, or robust language acquisition in both their first language (in this case, English) and the target language (Anishinaabemowin) in keeping with Cummins's Threshold Hypothesis (Cummins, 1976, 1979; Lasagabaster, 1998; Lindholm-Leary & Howard, 2008; Wilson & Kamana, 2011). Our findings reinforce the results of ILI research globally; consistently, we find that students may experience some academic or language delay upon starting school in an ILI environment but that with time, these students catch up and may even surpass expectations (McCarty, 2013; Preston, 2016; Raham, 2010; Osborne et al., 2009; White, 2015; Wilson & Kamana, 2011; Wright & Taylor, 1995). As White (2015) explains:

The belief that language immersion will hinder academic success must be dispelled. The future of indigenous language survival is at stake. Some language immersion students may fall behind temporarily... but the majority catches up quickly

Our results suggest that ILI may help overcome challenges in educational achievement that are of concern in Indigenous communities and that impact all of Canadian society. Still, First Nations may face significant barriers in developing ILI education given the chronic underfunding of First Nations schools in Canada (Morcom, 2014). However, in this era of reconciliation, Canadians owe it to First Nations children to move beyond resource constraints and to develop educational policy based on a renewed commitment to honour our treaties and respect our nation-to-nation relationships. Our shared goal must be to ensure that First Nations children have all the support they need to grow into confident learners who are armed with deep cultural and linguistic knowledge and who have the skills and resources to succeed in any path they choose.

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NOTES

Our thanks to the children, families, and teachers of the MMAK for their support of this research. Chi-miigwech. Research was funded by an Insight Grant from the Social Sciences and Humanities Research Council of Canada.

(1.) The average (or mean) is the sum of the scores divided by the number of scores. The median is the middle value in the list of scores. Standard deviation measures the variation in the scores; the higher the standard deviation, the more variation there is in the list of scores.

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Table 1. Results for Cohort A at the Junior Kindergarten Level Social Awareness skills and of self and learning Cognitive Language and Fine environment approaches skill communication motor Average 2.40 2.39 1.53 2.57 2.17 Median 2.50 2.38 1.38 2.66 2.40 Standard .40 .30 .86 .41 .52 deviation Gross motor Average 2.63 Median 2.63 Standard .42 deviation Table 2. Results for Cohort B at the Junior Kindergarten Level Social Awareness skills and of self and learning Cognitive Language and Fine environment approaches skill communication motor Average 2.05 2.15 1.28 1.88 2.28 Median 2.00 2.25 1.38 1.88 2.20 Standard .13 .52 .99 .45 .09 deviation Gross motor Average 2.60 Median 2.80 Standard .38 deviation Table 3. Results for All Junior Kindergarten Students Social Awareness skills and of self and learning Cognitive Language and Fine environment approaches skill communication motor Average 2.28 2.31 1.41 2.34 2.19 Median 2.50 2.38 1.38 2.50 2.40 Standard 0.37 0.36 0.87 0.51 0.43 deviation Gross motor Average 2.62 Median 2.80 Standard 0.39 deviation Table 4. Results for Cohort A at the Senior Kindergarten Level Social Awareness skills and of self and learning Cognitive Language and Fine environment approaches skill communication motor Average 2.55 2.19 2.36 2.49 2.42 Median 2.57 2.07 2.69 2.63 2.50

Standard 0.20 0.33 0.73 0.48 0.47 deviation Gross motor Average 2.66 Median 2.80 Standard 0.37 deviation Table 5. Results by Year Social Awareness skills and of self and learning Cognitive Language and Fine environment approaches skill communication motor JK Average 2.40 2.33 1.70 2.52 2.04 SK Average 2.55 2.36 2.50 2.42 2.66 Gross motor JK Average 2.50 SK Average 2.19

Source Citation (MLA 8th Edition)

Morcom, Lindsay A., and Stephanie Roy. "Learning through language: academic success in an Indigenous language immersion kindergarten." *Journal of American Indian Education*, vol. 56, no. 2, 2017, p. 57+. *Academic OneFile*, http://link.galegroup.com/apps/doc/A520642565/AONE?u=utoronto_main&sid=AONE&xid=e2039b0e. Accessed 25 Nov. 2018.

Gale Document Number: GALE|A520642565
