Learning through an Aboriginal Language: The Impact on Students' English and Aboriginal Language Skills

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Authors' Note

This research was supported by funds from the Mi'kmaq Kina'matnewey. The authors would like to thank all the students who participated in this research and the testers who collected all the data.

Abstract

Aboriginal communities across Canada are implementing Aboriginal language programs in their schools. In the present research, we explore the impact of learning through an Aboriginal language on students' English and Aboriginal language skills by contrasting a Mi'kmaq language immersion program with a Mi'kmaq as a second language program. The results revealed that students in the immersion program not only had stronger Mi'kmaq language skills compared to students in the second language program, but students within both programs ultimately had the same level of English. Immersion programs can simultaneously revitalize a threatened language and prepare students for success in mainstream society.

Keywords: Aboriginal language, bilingual education, immersion, language of instruction

Résumé

Des communautés autochtones partout au Canada mettent en œuvre des programmes de langue autochtone dans leurs écoles. Dans la présente recherche, nous explorons l'impact de l'apprentissage à travers une langue autochtone, sur les compétences des élèves en langue anglaise et autochtone, en comparant un programme d'immersion en langue Mi'kmaq, avec un programme en langue Mi'kmaq comme langue seconde. Les résultats ont révélé que non seulement les étudiants du programme d'immersion avaient des compétences plus solides en langue Mi'kmaq que les étudiants du programme de langue seconde, mais aussi que les étudiants au sein des deux programmes avaient le même niveau d'anglais. Les programmes d'immersion peuvent simultanément revitaliser une langue menacée et préparer les élèves à réussir dans la société.

Mots-clés: langue autochtone, éducation bilingue, immersion, langue d'enseignement

Learning through an Aboriginal Language: The Impact on Students' English and Aboriginal Language Skills

Introduction

The celebrated Canadian anthropologist Wade Davis compared the extinction of a language to the extinction of a species. Davis (2009) argued that "language is an old-growth forest of the mind," and that the death of a language is equivalent to the death of a fertile, intricate, and incredibly valuable way of being (p. 3). In Canada, Aboriginal languages, once complex vehicles for communicating rich and unique cultures, are under severe threat. Of the 53 Aboriginal languages that are currently spoken in Canada, only three are thought to have a good chance of survival: Inuktitut, Cree, and Ojibway (Norris, 2007). Furthermore, only one in four Aboriginal people in Canada currently speak an Aboriginal language (Norris, 2007). The Aboriginal languages that have survived a destructive colonization process are now increasingly threatened by the rising power and prevalence of English information technologies and by the general dominance of English and French in modern Canadian society. According to Davis (2009) and others (e.g., Berger, 2006; Simon, 2010), the revitalization of Aboriginal languages is currently one of Canada's most important challenges.

Aboriginal communities in Canada have responded to this challenge and are working towards revitalizing—and in some cases, re-learning—their Aboriginal tongue. One of the most promising methods of language revitalization is through the inclusion of the Aboriginal language as a language of instruction in schools. In the case of a threatened language, teaching young students in this language has been shown to be an effective method of producing more language speakers (Baker, 2003, 2006). Research has repeatedly demonstrated that the education children receive in school can play a vital role in developing a language and in teaching young students to speak, understand, and use a language that is under threat from a more dominant mainstream language and culture (Baker, 2003, 2006; Cummins, 1983, 1986; Fishman, 1991, 2001).

Inspired by these research findings, Aboriginal communities throughout Canada have introduced, in varying degrees, the Aboriginal language into their schools. Currently, programs range from complete immersion—where students are taught in the Aboriginal language for all school subjects all day, every day—to cases in which students are learning the Aboriginal language as a second language. Learning the Aboriginal language for only a few hours a day may have a very different impact on students' Aboriginal and mainstream language skills, compared to being completely immersed in this language while at school.

The present research explores the experiences of students attending either an Aboriginal language immersion program or an Aboriginal second language program. Specifically, within this research we used formal language tests to contrast the Mi'kmaq and English language skills of students attending a Mi'kmaq immersion program with the language skills of students learning Mi'kmaq as a second language at one school in Cape Breton, Nova Scotia. Little research has used rigorous, empirical tests to contrast immersion versus second language programs in Aboriginal communities in Canada. To date, the empirical research has primarily examined the language skills of students attending school in a community where the Aboriginal language was already relatively strong and was used as the principal means of communication in the community (Wright, Taylor, & MacArthur, 2000). The present research is one of the first studies to contrast different language programs in a community that is attempting to revitalize a severely

threatened language and to examine the impact of these language programs on students' Aboriginal and English language skills.

The Aboriginal Language as a Language of Instruction

When the decision is made to include an Aboriginal language in the school curriculum, some challenging questions arise. During our own experiences living and working in Aboriginal communities, we have heard parents, community members, and educators debate the extent to which the Aboriginal language should be used in the classroom. Many Aboriginal families are committed to supporting attempts to have their children learn the heritage language, thereby promoting a strong Aboriginal identity. However, families are also committed to having their children master a mainstream language to allow their children to participate fully in modern, mainstream society. Parents hope that using the Aboriginal language as a language of instruction at school will improve their children's abilities in their Aboriginal language, but they also question if it will harm their development in English or French. When there is a choice of enrolling one's child in an immersion program in which children spend the majority of their school day learning in an Aboriginal language, parents often worry that their children's abilities in the mainstream language will suffer. They are concerned that learning in language A will hinder their children's mastery of language B.

Surprisingly, most previous research has shown just the opposite—that learning language A does not impede learning language B. In other words, going to school entirely in an Aboriginal language does not in fact negatively impact abilities in the mainstream language. McCarty (2002) conducted a review of Aboriginal language programs in communities across the United States. She described a Navajo language program in which, by fourth grade, students educated entirely in Navajo performed just as well on tests of English as comparable students at the same school who were educated in English only. In addition, they greatly outperformed these English-only students on assessments of the Navajo language. McCarty concluded that teaching in the Aboriginal language has the potential to fulfill the dual roles of promoting students' proficiency in English and in working towards the revitalization of the Aboriginal language.

In Canada, Wright, Taylor, & Macarthur (2000) assessed Inuit students in an Inuktitut immersion program and directly compared them with Inuit students in English and French programs. They found that students educated entirely in Inuktitut not only developed strong Inuktitut skills, but also showed steady improvement in English and French, even though they were not learning through these languages in the classroom. In contrast, Inuit students who were educated primarily in English or French showed improvement in these mainstream languages, but their Inuktitut suffered.

More recent research has explored the extent to which learning in an Aboriginal language may actually facilitate skill in another language. Usborne and her colleagues (2009) demonstrated that early skill in Inuktitut was actually predictive of later success in a second language. They found support for Cummins' (1986, p. 20) *interdependence* hypothesis, which argues that instruction in a minority language that is effective in developing academic proficiency in that minority language results in the transfer of this proficiency to the majority language. Early skill in an Aboriginal language can, therefore, transfer to skills in a mainstream, majority language.

Research with non-Aboriginal, English-speaking students attending French immersion programs has shown that immersion programs can initially impede students' learning of some grammatical and academic aspects of English. For the first four years of French immersion, students tend not to progress in English as well as monolingual English students in mainstream

classrooms, especially in terms of reading, spelling, and punctuation (Baker & Prys Jones, 1998). However, this initial pattern does not last. After approximately six years of immersion education, immersion children have been shown to catch up, and even surpass, their peers in English-only classrooms in terms of English language skill (Baker & Prys Jones, 1998, Swain & Lapkin, 1991). The vast majority of research with mainstream students has demonstrated the considerable benefits of immersion programs. Students have consistently been shown to acquire French at no cost to their first language (Baker 2006; Baker & Prys Jones, 1998; Genesee, 1983; Swain & Lapkin, 1991).

In Aboriginal communities then, there is the potential for language learning to be *additive*—learning the Aboriginal language might not necessarily impede students' skills in the mainstream language. Instead, learning the Aboriginal language has great potential to improve students' abilities in their own language and contribute to their abilities in the mainstream language. One reason for this is the relative dominance of mainstream languages in mainstream society (Baker, 2006; Lambert, 1980). English is omnipresent, constantly accessed on the Internet, on television, and in music, making this language powerful enough to seep into the students' everyday existence. In contrast, Aboriginal languages are less dominant because they are spoken only by residents of a particular region or community. Students learning through an Aboriginal language will most likely absorb English skills through exposure to the dominant mainstream culture; however, learning in the mainstream language does not necessarily mean that the student will easily absorb their Aboriginal tongue given that it is much less dominant and pervasive.

Overall, the research exploring the use of Aboriginal languages in the classroom has demonstrated the considerable benefits of strong Aboriginal language programs and their impact in terms of students' abilities in both the Aboriginal tongue and the mainstream language. However, this research has primarily been conducted in communities where the Aboriginal language is relatively robust. Wright, Taylor, and Macarthur (2000), as well as Usborne and her colleagues (2009), explored Inuktitut immersion programs in communities where Inuktitut is used as the principal means of communication. Inuktitut is spoken in the home, at the grocery store, and among children at play. Upon entering school, students are already comfortable in this language, and when it is used as a language of instruction, they are easily able to understand their teachers and build academic skills in this language. These skills can then transfer to proficiency in the mainstream language. Much less research has examined Aboriginal language instruction in the context of a community where that language is severely threatened and not normally used as the principal vehicle for communication. In such contexts, students enter school with only a limited knowledge of the Aboriginal language. The present research examines the language skills of students in such a context and explores the consequences of attending school entirely in an Aboriginal language with which students are not necessarily comfortable before beginning school. What impact does this experience have on students' abilities in both the mainstream and Aboriginal languages?

Description of Research

Our research was conducted at one school in a Mi'kmaq community in Cape Breton. Concerned about the state of their language, the Mi'kmaq Kina'matnewey, an Aboriginal organization that oversees seven schools in Mi'kmaq communities in Cape Breton, has taken on the challenge of implementing the Mi'kmaq language as a language of instruction in their schools. In order to evaluate the impact of this initiative, they have also undertaken a longitudinal

research project designed to track the progress of their students in both English and Mi'kmaq. The data described herein represent a subset of data from this larger longitudinal project.

All of the students who participated in this research were from the same community and attended the same school. Each student was enrolled in either a Mi'kmaq immersion program or a Mi'kmaq as a second language (regular stream) program. The fact that students in the two language programs were from the same community and attended the same school allowed us to make a meaningful comparison across language programs. Any observed differences in language abilities were not likely due to outside factors, such as the strength of the Mi'kmaq language in that particular community or in that specific school, but were instead likely to be due to the type of language program in which the students were enrolled. Because the research was conducted in a natural, non-laboratory setting, we were of course not able to control all extraneous factors impacting the language abilities of the students. For instance, our sample may have contained students experiencing certain learning disabilities, language delays, or facing particular challenges at home. However, because our sample size was large, we hoped that there were few systematic differences between the immersion and non-immersion students, and that individual differences between students would have a minimal impact on our aggregated data. Overall, this was a rare, and important, opportunity to explore the differential impact of the two language programs.

Students in kindergarten, primary and first grade, who were enrolled either in a Mi'kmaq immersion or regular stream program, participated in our study.[1] Students in the Mi'kmaq immersion stream were taught each of their core subjects (i.e., Math, Language Arts, and Social Studies) in Mi'kmaq throughout the school year. In contrast, students in the regular stream were taught their core subjects in English and took Mi'kmaq as a second language for a minimum of an hour a day. For our research, each student completed a comprehensive battery of language tests in English and Mi'kmaq during the spring of their school year. These language tests, developed for the purposes of this research, were administered by trained testers, and were meant to assess students' general language competency and specific language skills in both English and Mi'kmaq.

We formulated two hypotheses based on past research exploring Aboriginal language programs in Canada. The first hypothesis was that students in all grades in the Mi'kmaq immersion stream would have higher scores on the Mi'kmaq language test compared to students in the regular stream. Attending school entirely in Mi'kmaq allows students to learn *through* this language in that all core subjects are taught in the Mi'kmaq language. On the other hand, learning the Mi'kmaq language as a second language does not allow such a comprehensive exposure to the complexities and usage of the language. Our second hypothesis was that students in the Mi'kmaq immersion program would begin with poorer English skills in the early grades compared to those in the regular program, as they spend the majority of their time at school in the Mi'kmaq language. However, in later grades, they would have similar English language skills to those in the regular stream program.

Based on research demonstrating the additive and transferable nature of language learning in Aboriginal contexts, as well as the relative dominance of the English language in Nova Scotia, we predicted that learning in Mi'kmaq would not inhibit the learning of English. In a context where the Aboriginal language is not necessarily the principal means of communication, English

[1] In the community, where the present research takes place, kindergarten is equivalent to pre-kindergarten elsewhere in Canada, primary is equivalent to kindergarten, and first grade is equivalent to first grade.

should actually be particularly powerful, making it less likely that students' English abilities would suffer as a result of a Mi'kmaq immersion program. We hypothesize, therefore, that students in the Mi'kmaq immersion program will be more skilled in Mi'kmaq and ultimately just as strong in English compared to their peers in the Mi'kmaq as a second language program.

Method

Participants

In one school in the Mi'kmaw Kina'matnewey region, 220 students were tested in the spring of one school year. Eighty-four of these students were enrolled in the Mi'kmaq immersion program (41 in Kindergarten, 18 in Primary, and 25 in Grade 1), and 134 were enrolled in the regular program and were taking Mi'kmaq as a second language (27 in Kindergarten, 50 in Primary, and 57 in Grade 1). Program information was unavailable for two students. Although almost all students were tested in both Mi'kmaq and English, some students, because of scheduling difficulties, completed the test in only one language. Eight students did not complete the Mi'kmaq test and 10 students did not complete the English test. The descriptive analyses, therefore, examined the scores of the 202 students who completed both the Mi'kmaq and English language tests, and the main analysis, designed to test our hypotheses, analyzed the scores of the 200 students for whom the language program information was available (80 in the Mi'kmaq immersion program and 120 in the regular program).

Materials and Procedure

The language tests employed in the present research were adapted from a set of tests used in a 20-year longitudinal study of language skills conducted by the Kativik School Board in Nunavik, Quebec. These original tests were used to assess the Inuktitut, English, and French skills of Inuit students and were developed jointly by a team of Inuit, Francophone, and Anglophone educators affiliated with the Kativik School Board, as well as a team of academic researchers affiliated with McGill University. A number of studies published in peer-reviewed journals (e.g., Louis & Taylor, 2001; Usborne, et al., 2010; Wright, Taylor, & MacArthur, 2000) have employed these tests to assess the academic and conversational language skills of young Inuit students. They are thus valid and reliable measures of language ability among Inuit children.

These original tests were adapted for use in the present research. The adaptation was undertaken by the study's authors and by a committee of Mi'kmaq educators from Cape Breton, in order to ensure that the tests met the requirements of assessing Mi'kmaq students for language acquisition. Through a careful procedure of translation and back-translation, test batteries were developed in English and Mi'kmaq in order to assess skills in both languages and to be appropriate for use with Mi'kmaq students. A Mi'kmaq language panel in Cape Breton reviewed the content of the tests for both linguistic and cultural accuracy. The test package was not only culturally and linguistically adapted, but was developed to be age appropriate as well. It was visually appealing for young children and was fashioned so that students would enjoy the testing session. We elected not to use established, standardized English language tests in the present study. Despite their high reliability and validity for the English-speaking population, standardized tests are not adapted to the Aboriginal context and have not, to our knowledge, been standardized on Aboriginal populations. We elected instead to use tests that had previously been successfully used in an Aboriginal (Inuit) context, and we worked to adapt them for use with Mi'kmaq students. We recognized that tests used in an Inuit context are not necessarily valid for, and

applicable to, a Mi'kmaq context, thus we were careful to ensure both cultural and linguistic accuracy.

The tests were comprised of a number of different tasks designed to assess general language competencies and specific language skills. These tasks included identifying and naming colors, shapes, numbers, body parts, letters of the alphabet, and animals. Students were asked to count to 40, to read sight words, and finally they were read a story and asked to answer questions about it in order to assess story comprehension. These particular language tasks were selected based on their inclusion in the original tests used with Inuit students (Louis & Taylor, 2001; Usborne, et al., 2010; Wright, Taylor, & MacArthur, 2000). Both the English and Mi'kmaq versions of the test battery were actually expected to be quite difficult for students. Because the present research is part of a longitudinal project where students repeat identical tests over a number of grade levels, the test was meant to allow room for improvement as the students progress through the grades.

Four trained testers from Mi'kmaq communities in Cape Breton administered the tests to the students. The testers were trained by two of this study's authors, one of whom has worked for many years in the area where the research was conducted. The testers attended one or more training sessions during which they were explained the purpose of the research, the test and testing materials, and were given the opportunity to practice administering the test. All testers were fluently bilingual in both Mi'kmaq and English. The testers met with students over a period of a few days. Test sessions were conducted outside of the classroom one-on-one with the student, with each session taking approximately 30 minutes. The test was introduced to students as a test of their Mi'kmaq and English language abilities and was portrayed as fun and non-evaluative. The Mi'kmaq and English tests were not conducted on the same day. Anecdotal reports from the testers indicated that students enjoyed participating in the test sessions. The Mi'kmaw Kina'matnewey organization requested and approved this research.

Results and Discussion

Descriptive Analyses: Overall Mi'kmaq and English Language Scores

Students' scores on each of the specific language tasks were added together to create a total language score for Mi'kmaq and English representing students' total level of competency in each language. The total language scores reported here are percentages, with a perfect language score being 100%. Students' Mi'kmaq and English scores were compared using paired samples t-tests. In the present case, a paired-samples t-test allowed us to test if students had a significantly different level of Mi'kmaq skill compared to their English language skills. Below, we also report the means (*M*) and standard deviations (*SD*) of students' language scores.

Given the language reality in the community, overall, across all grades, students' English scores ($M = 60.22$, $SD = 22.68$) were significantly and dramatically higher than their scores in Mi'kmaq ($M = 21.00$, $SD = 22.43$), $t(201) = 20.30$, $p < .001$. This pattern was consistent across grade levels with students scoring significantly higher in English than in Mi'kmaq in all grades (all $ps < .001$; see Table 1 for means and standard deviations of language skills by grade).

Table 1.

Overall Means (Standard Deviations) of Mi'kmaq and English Language Scores for all Students.

Grade	Average Mi'kmaq Score (%)	Average English Score (%)
Kindergarten	8.40 (9.34)	36.86 (17.34)
Primary	26.68 (27.15)	64.24 (16.51)
Grade 1	26.28 (21.88)	74.96 (14.81)
Overall	20.50 (22.31)	60.62 (22.59)

Students in all grades were stronger in English than they were in Mi'kmaq. These results are indicative of the relative strength of the English language compared to the Mi'kmaq language in the community. However, the large standard deviations associated with students' mean language scores, especially in Mi'kmaq, are indicative of the fact that students' language skills varied greatly within each language and within each grade. It was thus important to explore their language skills as a function of the program in which they were enrolled, as their language program is likely to account for some of the variation in language skills among students.

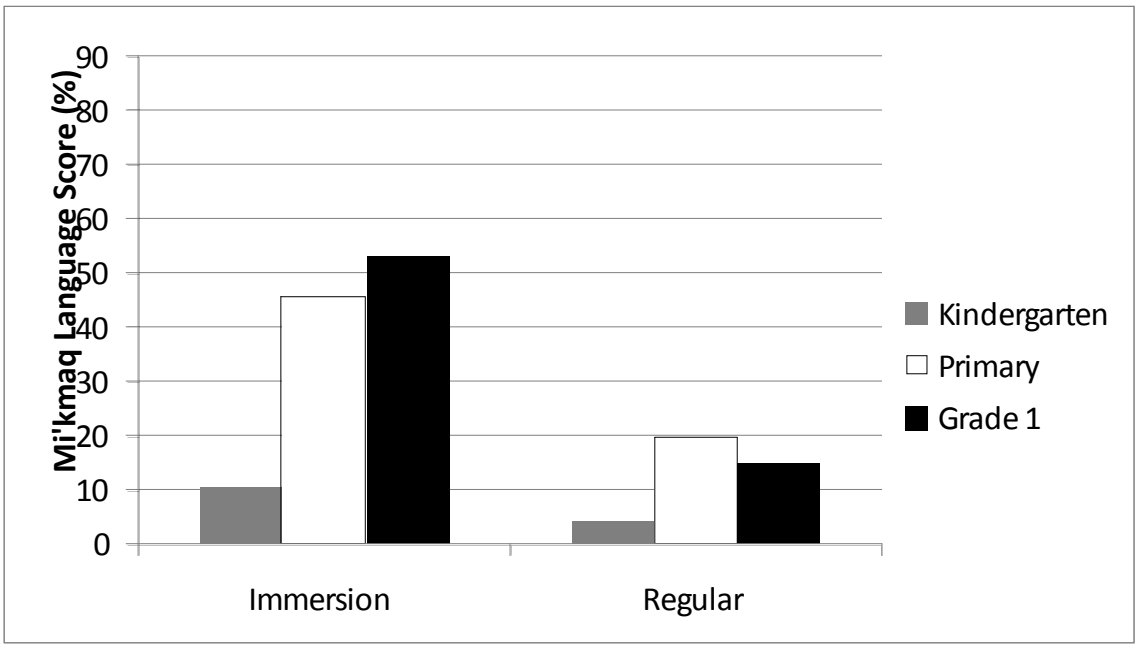
Main Analyses: Mi'kmaq Immersion vs. Mi'kmaq as a Second Language

Mi'kmaq language skills. The Mi'kmaq language skills of students in both the Mi'kmaq immersion and the Mi'kmaq as a second language (regular) programs were analyzed and compared using one-way analyses of variance (ANOVA). In the present case, a one-way ANOVA allowed us to compare the Mi'kmaq language scores of students in the immersion program with the Mi'kmaq language scores of students in the regular program.

Figure 1 presents a breakdown of the total average Mi'kmaq language score by grade as a function of the two language programs. In kindergarten, students in the immersion program had significantly higher Mi'kmaq scores ($M = 10.61$, $SD = 10.64$) compared to students in the regular program ($M = 4.19$, $SD = 3.48$), $F(1,59) = 7.18$, $p = .01$. This difference became even greater in the primary grade, where students in the immersion program had much higher scores ($M = 45.60$, $SD = 19.69$) than did students in the regular program ($M = 19.37$, $SD = 26.23$), $F(1,59) = 13.90$, $p < .001$. Finally, in Grade 1, students in the immersion program also had much higher scores ($M = 53.09$, $SD = 17.60$) than did students in the regular program ($M = 14.91$, $SD = 11.60$), $F(1,76) = 127.61$, $p < .001$. In support of our first hypothesis, students in the Mi'kmaq immersion program appear to be learning significantly more Mi'kmaq than students in the Mi'kmaq as a second language program. This difference is particularly striking in Primary and even more so Grade 1.

Figure 1.

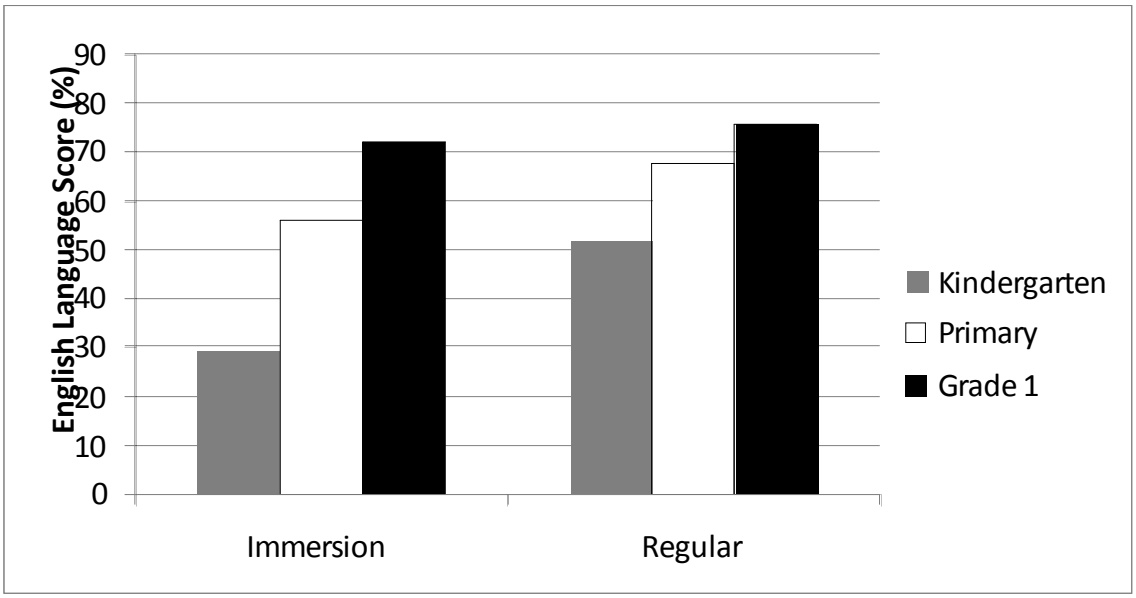
Total Mi'kmaq language skills by language program and grade.



English language skills. The English language skills of students in both the Mi'kmaq immersion and the Mi'kmaq as a second language (regular) programs were also analyzed using one-way ANOVAs. Figure 2 presents a breakdown of the total average English language scores by grade as a function of the two language programs. In Kindergarten, students in the immersion program had significantly lower English scores ($M = 29.09$, $SD = 13.90$) compared to students in the regular program ($M = 51.67$, $SD = 13.17$), $F(1,59) = 37.63$, $p < .001$. In the Primary grade, this difference is reduced, although still significant, where students in the immersion program had lower English scores ($M = 55.76$, $SD = 14.00$) than did students in the regular program ($M = 67.51$, $SD = 16.37$), $F(1,59) = 6.81$, $p = .01$. However, in Grade 1, students in the immersion program had English scores ($M = 72.08$, $SD = 13.59$) that were equal to the English scores of students in the regular program ($M = 75.54$, $SD = 15.37$), $F(1,76) = .98$, $p = .33$, n.s. In support of our second hypothesis, students in the Mi'kmaq immersion program are not only learning more Mi'kmaq than students in the Mi'kmaq as a second language program, but by Grade 1, they are also performing just as well in English. Overall, both groups of students had the opportunity to be strong in English—presumably because of its relative power and prevalence in the community and the wider society—but only the immersion students had the opportunity to have strength in both languages.

Figure 2.

Total English language skills by language program and grade.



Additional Analyses: The Relationship between English and Mi'kmaq Language Skills

The results of our main analyses demonstrated support for our hypotheses in that students in the Mi'kmaq immersion program had higher scores in Mi'kmaq than those in the Mi'kmaq as a second language program, and that by Grade 1, students in the immersion program performed as well in English as those in the Mi'kmaq as a second language program. Additional support for these results comes from an analysis of the relationships between participants' scores on the Mi'kmaq and English language tests. Because we were curious about the extent to which strength in the Mi'kmaq language was statistically associated with strength in English, we explored the correlation between students' Mi'kmaq and English language scores across all grades and language programs. Testing the correlation between two sets of scores means testing the way in which the two sets of scores are related to each other. A significant positive correlation indicates that the two sets of scores are positively associated with each other—that having a high score on one set of scores corresponds with having a high score on the other set. A significant positive correlation between English and Mi'kmaq scores would then mean that if a student has a high score in Mi'kmaq, they are likely to have a high score in English and vice versa.

We found that students' scores in English and Mi'kmaq were significantly positively correlated with each other, $r(201) = .26$, $p < .001$. These results indicate that students who are strong in one language are likely to be strong in the other. However, when we tested the relationship between Mi'kmaq and English language skills separately by language program, we found that although the correlation was highly significant and positive among students in the immersion program $r(79) = .81$, $p < .001$, it was actually non-significant among students in the regular program $r(119) = .13$, n.s. For students in the regular program, strength in one language was not associated with strength in the other.

These results are important, as they provide additional evidence for our hypothesis that, in the context of a Mi'kmaq immersion program, being strong in Mi'kmaq does not necessarily mean being weak in English. In addition, they point to the power of the Mi'kmaq immersion

program. In an immersion program, students who are strong in one language are more likely to be strong in the other. However, the same cannot be said for those in a second language program, where strength in one language does not appear to correspond with strength in another.

General Discussion

The results of the test battery comparing the Mi'kmaq and English language skills of students in the Mi'kmaq immersion and Mi'kmaq as a second language programs have important implications. Learning in Mi'kmaq does not necessarily mean that students' English will suffer. On the contrary, students in the immersion program appear not only to learn Mi'kmaq to a far greater degree than the students in the regular program, but they also ultimately learn English equally as well as those in primarily English language classrooms.

Students in the Mi'kmaq immersion program are exposed to the Mi'kmaq language to a much greater extent than are students in the regular program, so it is not surprising that their Mi'kmaq language skills are stronger. These results speak to the more general finding that the acquisition of a language is associated with the percentage of time that an individual is exposed to that language (Baker, 2006; Cummins, 1983). Fishman (1991) has argued that immersion programs function most effectively to revitalize an Aboriginal language when supported by parents and the community as a whole. More exposure to the Aboriginal language both in the school through an immersion program and in the broader community adds to its power, thereby increasing the proficiency of young Aboriginal people in this language.

The finding that students in the Mi'kmaq program are ultimately just as strong in English as their peers in primarily English classrooms points to the additive feature of language learning. It is natural for people to think about language in a "hydraulic" fashion: as ability in one language increases, the ability in another language decreases, and vice-versa. What researchers have found, however, is that when ability in one language increases, it can transfer to another language, so there is a benefit to both languages. Indeed, the use of any language stimulates the language centers in the brain. These language structures then exist to perform language-related tasks, regardless of the language spoken (Cummins, 1983, 1986). Building strong academic skill in the minority language most likely means this skill will transfer to skill in the mainstream language (Cummins, 1983, 1986). Immersion programs are particularly important as they give students a strong base in their Aboriginal tongue, which is then associated with success in the mainstream language. It is important to note that the immersion program has to be a strong one for such an association to exist. Instruction in the threatened language must develop academic proficiency in that language and solid literacy skills in order for transfer to occur to the mainstream language (Cummins, 1986). The immersion program explored in the present research appears to be an example of such a strong program.

The finding that students' Mi'kmaq and English language skills were significantly correlated only for immersion students is consistent with the findings of Usborne and her colleagues (2009). These researchers found that although early skill in Inuktitut was predictive of later skill in English or French, early skill in English or French was not actually predictive of later skill in Inuktitut. Learning in the mainstream language does not necessarily mean that strength in this language is associated with strength in the Aboriginal language, whereas learning in an Aboriginal language has the capacity to produce strength in both languages. These results are most likely due to the relative dominance of the two languages. Students learning through an Aboriginal language will likely absorb English skills simply through exposure to the powerful

mainstream culture. However, learning in the mainstream language does not necessarily mean that students will easily absorb their Aboriginal tongue, as it is less dominant, less prevalent in the community, and students only have a limited exposure to it at school. Our results confirm the observations of researchers in many other minority language contexts (for reviews, see Baker, 2006, Cummins, 1983; Lindholm-Leary, 2001).

Conclusions and Future Directions

For Aboriginal communities in Canada who want to revitalize and/or preserve their language, while at the same time prepare their students for success in mainstream society, having the Aboriginal language as the principal language of instruction appears to be a very promising course of action. Even in communities where the Aboriginal language is not used as the primary means of communication, our research has demonstrated the benefits of a strong immersion program. These results speak to concerns that educators and parents have about the Mi'kmaq immersion classroom: learning Mi'kmaq does not have a negative impact on learning English.

In addition, the results speak to the importance of revitalizing an Aboriginal language for connecting with one's culture and identity. Beyond the transfer of specific language skills, researchers argue that education in a heritage language may be particularly important for students' cultural identity (Cummins, 1983, 1986). Wright and Taylor (1995) found that Aboriginal students educated in their heritage language actually showed increased self- and collective-esteem compared to those educated in a second language (English or French). This is consistent with other research showing that understanding one's cultural identity is important for psychological well-being (Usborne & Taylor, 2010), and that language learning is an excellent tool for connecting with one's Indigenous cultural identity through education (Battiste, 2002).

The data presented here are a subset of data from a larger longitudinal project exploring the Mi'kmaq and English language skills of young children in classrooms where the Aboriginal language is used as a language of instruction. The present results are from a single year, meaning that they are a snapshot of one group of students in different grades. An interesting next step would be to follow the same set of students across grades in a longitudinal fashion in order to explore the development of students' language skills in both the immersion and regular streams. Such a research program would shed more light on the extended impact of the two language programs on students' language skills and would allow for a more thorough investigation into whether or not early skill in Mi'kmaq actually transfers to later skill in English. This may well be the next research goal of those affiliated with the Mi'kmaq Kina'matnewey research project in Cape Breton. Students in immersion programs pursue these programs only until Grade 2 or Grade 3, at which point they switch into a primarily English classroom. It would then also be important to examine the impact of this switch from the Mi'kmaq immersion to the mainstream language classroom on students' abilities in both languages.

In addition, the psychological effects of attending school primarily in Mi'kmaq versus primarily in English for young Aboriginal students could be explored in future research. Wright and Taylor (1995) demonstrated the dramatically positive psychological impact of attending school in Inuktitut on young Inuit children, both in terms of their own self-esteem and in terms of the pride they felt for their Inuit culture. Similar research could be conducted in the present context exploring the impact that immersion and second language programs have on the psychological well-being of students who are attending Aboriginal language programs in a community where the Aboriginal language is not already strong.

Finally, it is essential to conduct language research that extends beyond the school in Aboriginal communities. In order to truly examine whether Aboriginal language programs are succeeding in revitalizing seriously threatened languages and cultures, research must extend to adulthood and examine the impact of these programs on an entire community. Comprehensive longitudinal studies exploring the effects of using the Aboriginal language as a primary language of instruction must be undertaken to examine the broader impact of immersion programs on Aboriginal languages, cultures, and communities.

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