A Comparison of Full-Day and Half-Day English and French Immersion Kindergarten: Children’s Outcomes and Experiences

by

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Abstract

The purpose of this research was to examine kindergarten children’s outcomes and experiences in four program models: full-day French immersion, half-day French immersion, full-day English, and half-day English.

This quasi-experimental study employed a mixed methods approach. Child participants (N=70) across the four programs were administered standardized measures of English receptive vocabulary and reading, as well as a print task, a number sense task, a drawing task, and an interview, at the beginning and end of kindergarten, as well as at the beginning of Grade 1. Additionally, children from French immersion (FI) programs were administered equivalent measures in French. Parents of child participants completed questionnaires at the beginning and the end of kindergarten, which served to provide demographic information and parents’ perspectives of their children’s experiences. Finally, in order to provide context for the study, educators (N=7) across the four programs participated in semi-structured interviews relating to program implementation and child experiences.

Mixed ANOVAs were conducted in order to determine program differences at each time point. Results revealed significant differences in English word identification, with children from
English full-day kindergarten (FDK) scoring significantly higher at the beginning of Grade 1 than children in either FI program, and English word decoding, with only children from half-day programs (FI and English) making significant gains over the kindergarten year. However, when analyzing French literacy skills, only children from FI FDK kindergarten made significant gains in word identification scores, and scored significantly higher in receptive vocabulary than children from half-day FI kindergarten. When examining drawing complexity, results revealed only children from FDK programs (both English and FI) made significant gains between time points. Children’s interview transcripts revealed that across all programs, play was discussed more frequently at the kindergarten level, but academics were discussed more often in Grade 1.

This study makes important contributions to the literature on full-day kindergarten programming as well as second-language education. Findings suggest that FDK has a greater impact on reading in second-language contexts and that increased exposure to the second language, as well as learning through play, is beneficial for vocabulary development and word identification in the second language. In the context of education in Ontario, this study has particular relevance as school boards decide whether to offer FI at the kindergarten level with the emergence of the new play-based FDK program.
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Chapter 1: Introduction

1.1 Rationale for the study

Canada’s unique role as a bilingual country presents many benefits to those who speak both English and French: being able to communicate in both languages throughout the country, understanding and appreciating another culture, and most notably, the increased employment opportunities that exist for bilingual citizens (Canadian Council on Learning, 2007; 2008). Consequently, in Canada students have the option of attending school in an English, French or French immersion (FI) setting. An FI classroom differs from a regular English classroom in that most or all of the material is taught in French. In Ontario, there are three points at which students can begin an FI program: kindergarten or Grade 1 (early FI), Grade 4 or 5 (middle FI), or Grade 7 (late FI). For those students in early FI programs, English language arts are introduced slowly (usually around 40 minutes per day) starting in Grades 2, 3 or 4 (Cummins, 1998; Ontario Ministry of Education, 2013a). The current research focuses only on the early FI program, and more specifically, early FI programs beginning in kindergarten.

Until 2010, the kindergarten program in Ontario was half-time. Depending on the school board, students either attended kindergarten every day for half a day or all day on alternating days. However, in September 2010, full-day early learning kindergarten programs were implemented in 600 schools across the province with the ultimate goal being full-day learning for all kindergarten students by September 2015 (Pascal, 2009). While full-day kindergarten (FDK) in Ontario presents a new model of early childhood education, previous full-day learning or integrated school and childcare programs have shown the benefits of a seamless day for children. For example, the Toronto First Duty project, an early childhood program that brought together kindergarten, child care, and parenting supports, showed that integrated staff teams
strengthen the learning environment for young children and that fewer transitions between daily programs are associated with better child academic outcomes (Corter et al., 2009; Corter & Pelletier, 2010).

1.1.1 The Full-Day Kindergarten program in Ontario

Ontario’s full-day early learning kindergarten program (FDELK) replaced a half-day curriculum (Ontario Ministry of Education, 2006). The FDELK (Ontario Ministry of Education, 2010a) document was developed based on the report “With Our Best Future in Mind”, prepared by the special advisor to the premier on early learning, Charles Pascal. This report was commissioned by the premier of Ontario with the goal of understanding how to best implement full-day learning for 4- and 5-year-old children. The impetus for this document, as well as the resulting FDELK curriculum, was to connect the existing fragmented system of early childhood care and education and to ensure that all children have access to quality early childhood programming in order to reduce the number of children beginning Grade 1 significantly behind their peers (Pascal, 2009). The model for FDELK proposed by Pascal included two significant changes to the existing curriculum (Pelletier, 2014). The first was a curriculum and pedagogy highlighting play as a learning tool in early childhood, particularly in the areas of cognitive development and motivation. The second recommended change was that staff teams of certified teachers and early childhood educators implement the program. The report also suggested several positive outcomes over the long term as a result of this new curriculum, such as higher literacy and numeracy scores on Grade 3 and Grade 6 provincial tests and higher secondary graduation rates.

The result of Pascal’s “With Our Best Future in Mind” is the full-day kindergarten curriculum for Ontario (Ontario Ministry of Education, 2010a; 2016), as well as several
accompanying documents such as Full-Day Early Learning – Kindergarten Program: The Extended Day Program (Ontario Ministry of Education, 2010-11), Full-Day Early Learning Kindergarten Program for Four- and Five-Year-Olds: A Reference Guide for Educators (Ontario Ministry of Education, 2010b), and How Does Learning Happen? (Ontario Ministry of Education, 2014), all documents created by the Ministry of Education to support teachers and early childhood educators in their implementation of the program. The FDELK curriculum combines expectations from the previous kindergarten curriculum (Ontario Ministry of Education, 2006) with elements from the Early Learning for Every Child Today (ELECT) document (Best Start Expert Panel on Early Learning, 2007). Along with academic outcomes, it highlights the importance of other key areas such as social and emotional development and the role of play in learning (Ontario Ministry of Education, 2010a).

The FDK program in Ontario is founded on a newly developed, play-based curriculum. It should be noted that the original FDELK curriculum, which was first implemented in 2010, was published only in draft format (Ontario Ministry of Education, 2010a). A newer and finalized version of the curriculum replaced the draft version in 2016 (Ontario Ministry of Education, 2016). However, the full-day curriculum delivered during the time of this study was the draft version, therefore when making reference to the FDELK or FDK program, it is in relation to the 2010 draft edition. While the academic goals for children are consistent with the former, half-day curriculum, there are changes in how these goals are achieved. While the half-day program included more teacher-directed learning, as well as more rigid criteria for the activities each child was to complete at various points throughout the year (Karia, 2014; Pelletier, 2014), the FDELK curriculum “shifted the learning in Kindergarten to less formal and more organic with flexibility, choice, and variety for the child and less teacher-directed learning” (Karia, 2014, p.12).
1.1.2 Implementation and evaluation of Ontario’s FDELK program

At the time of the current study, Ontario’s full-day kindergarten program was in its third and fourth years of implementation. Nonetheless, research had already been conducted on the program’s effectiveness, children’s outcomes, and children’s, parents’ and educators’ experiences in the program. The phasing in of the FDELK program allowed for direct comparisons between the full-day and half-day kindergarten programs. Pelletier’s ongoing longitudinal studies, reviewed in the following chapter, (Pelletier, 2012a, 2012b, 2014) take place in two Ontario school boards and will follow students until the end of Grade 6 in order to determine whether there are long-term effects of the FDELK program. Findings from this study will reveal whether Pascal’s hypotheses, that Ontario’s full-day kindergarten program will yield higher literacy and numeracy results on the provincial tests, were correct.

The Ontario Ministry of Education also commissioned a study to evaluate the first two years of implementation of Ontario’s FDELK program. This research was informed by two separate studies (Janus, Duku, & Schell, 2012; Vanderlee, Youmans, Peters, & Eastabrook, 2012), and took place in 125 schools in 18 school boards across the province. Quantitative measures of child outcomes, such as the Early Development Instrument (EDI) and the Ontario Student Information System (OnSIS), as well as qualitative measures such as classroom observations, focus groups with parents, and interviews with educators and school principals, were administered. Overall, findings revealed that FDK reduced risks for children who were vulnerable, as measured by the EDI, and that children who participated in two years of FDK (as opposed to only one year) had increased risk reduction (Ontario Ministry of Education, 2013c). This study took place in both English and French language school boards; however, there was no indication as to whether any of the schools from the English language school boards consisted of
any FI schools or students. Beyond quantitative academic outcomes, this study also used information resulting from qualitative focus groups, surveys, and interviews to identify recurring themes related to program implementation and children’s, educators’, and parents’ experiences in FDK. While there were eight emerging themes, only those that pertain most to the current study are described here. In terms of the team of teacher and early childhood educator, findings suggested that the expertise of each individual was not necessarily being optimized in FDK classrooms and that, while some teams were working well together, others reported the need for further clarification of individual roles. A second topic of relevance was in the area of program delivery. While educators did indicate that they were implementing play-based and inquiry-based learning, there was great variability in terms of how the program was being delivered across schools and school boards. A third theme resulting from the qualitative components of this study was the FDK children’s social and emotional development. Findings supported the quantitative results, indicating that children from FDK programs were developing greater social competencies and understanding, as well as self-regulation abilities (Ontario Ministry of Education, 2013c). It should be noted that the FDELK curriculum’s definition of self-regulation includes aspects of cognitive self-regulation (i.e., working memory, attention, and cognitive flexibility), social self-regulation (i.e., behaviour regulation), and emotional self-regulation (i.e., regulating emotional expressiveness, acknowledging others’ emotions) (Ontario Ministry of Education, 2010a).

1.1.3 Implications of the FDELK program on French immersion kindergarten

The Ontario FDELK curriculum document does not include any references to FI kindergarten programs; however, it does contain a section entitled “Program considerations for English Language Learners” (Ontario Ministry of Education, 2010a, p.37). While some of these
considerations, such as “recognizing the importance of the orientation process” and “when they are ready to participate…some children will begin by using a single-word or phrase to communicate a thought, while others will speak quite fluently” (Ontario Ministry of Education, 2010a, p. 38) are relevant to second language learning in general, most are specific to English Language Learners (ELLs). These include considering students’ cultural backgrounds and opportunities for literacy development in their first language, as well as the students’ proficiency in English. However, although the context of FI in Canada is changing and it can no longer be assumed that children in French immersion classes come from the same linguistic and cultural backgrounds (Swain & Lapkin, 2005), there are nevertheless differences between the ELL and the FI contexts. For the particular population involved in this study, the first language was the same for every student (English), and the teacher was completely fluent in that first language. Conversely, ELLs come from a variety of linguistic backgrounds and it is not always the case that their teacher can communicate with them in their first language. Given the diversity of the Canadian population, it cannot be assumed that English is the first language among all students in FI contexts. In communities with more diverse populations, there are students in FI classrooms who do not speak English as their first language, and therefore are not able to communicate with the teacher in their first language should the need arise. A second factor that distinguishes an FI setting from an English language learning setting is that for FI students, kindergarten is often their first exposure to the French language and therefore, students begin with more equal language abilities in French than ELLs might begin in English. While students may have had different amounts of exposure to French prior to beginning a FI program, generally in kindergarten it is assumed they all start with little or no French abilities. On the other hand, ELL students come to the classroom with varying levels of English comprehension and speaking
abilities. These differences between ELLs and FI students highlight the importance of having a section of Ontario’s kindergarten curriculum aimed specifically at FI programs. Given that 38 out of 53 school boards in Ontario offering FI begin at the kindergarten level (Canadian Parents for French, 2010), the absence of references to the FI program in the curriculum document leaves school administrators, teachers, and early childhood educators to interpret on their own how the FDK program should be delivered in FI contexts.

1.2 Theoretical framework

This study is contextualized within a Vygotskian theoretical framework, as it explores a play-based curriculum for full-day kindergarten. While many researchers have examined the role of play in child development (e.g., Bergen, 2002; Lillard, Lerner, Hopkins, Dore, Smith, & Palmquist, 2013) and its implications for early childhood education (e.g., Ashiabi, 2007; Van Oers, 2003; 2012), Vygotsky’s work represents some of the earliest research in this area, and much of the research conducted since has built on his theories.

Vygotsky (1967; 1978) believed play to be the leading source of development during the kindergarten years and described play as “a novel form of behavior in which the child is liberated from situational constraints through his activity in an imaginary situation” (1978, p.11). This novel behaviour, the ability to imagine objects and scenarios that are not truly there, is considered to be an entirely new psychological process and therefore represents a significant cognitive milestone. According to Vygotsky, play enables the development of self-regulation in young children, as it requires the inhibition of impulses in order to respect the rules of the play scenario. Doing so results in greater rewards in the play period, because by adhering to the rules of play, children are implicitly learning to delay gratification and are able to prolong the pleasure that play brings. Consequently, “a child’s greatest achievements are possible in play –
achievements that tomorrow will become his average level of real action and his morality” (1978, p. 100).

Vygotsky’s theory of play and its importance for development during the kindergarten years is particularly relevant in the context of Ontario’s FDELK program. As previously indicated, the new kindergarten model has not only been changed in terms of the amount of time children spend in the kindergarten classroom, but also in terms of the theory guiding the kindergarten curriculum. The new curriculum is play-based, meaning that “effective classrooms in the Full-Day Early Learning Kindergarten Program take advantage of play, and embed intentional opportunities for learning in the physical environment, and play activities” (Ontario Ministry of Education, 2010a, p.7). A Vygotskian perspective suggests that if educators are explicitly using children’s play experiences as learning opportunities, then children in full-day, play-based kindergarten programs will be at a developmental advantage over children in half-day kindergarten programs using the former curriculum model.

The area of second language acquisition provides an additional theoretical framework for this study, given the focus on FI contexts. Specifically, the impact of increased language exposure on second language (L2) development (Carroll, 1975; 1977; Genesee, 2004; Swain, 1978) and the linguistic interdependence hypothesis (August & Shanahan, 2006; Cummins, 1979; 1981b; Riches & Genesee, 2006) provide a basis for investigating and understanding the impact of full-day FI kindergarten on children’s outcomes in both French and English. In the context of this particular study, L1 refers to English and L2 refers to French.

While full-day FI kindergarten is a new model in Ontario, FI kindergarten has been offered as a half-day program for decades and this approach to second language learning has been studied extensively. While many aspects of the program have been investigated, such as the
optimal age to begin FI programs (e.g., Cummins, 1980; 1983; Genesee, 1978; 1981), and the role of the first language (L1) in FI classrooms (e.g., Cummins, 2007; Swain & Lapkin, 2000; 2013), of particular relevance to this study is the amount of exposure to French and its impact on L2 development, as this is one of the key differences between the full-day and half-day FI kindergarten model. Krashen’s (1985) input hypothesis proposes that language is acquired “by understanding messages or by receiving ‘comprehensible input’” (p.2). This is particularly relevant to second language education contexts, including FI. Krashen (1986) argues that the best way for children to learn a second language is to be exposed to ‘comprehensible input’ (i.e., the language itself) slightly above the students’ level of understanding, rather than being explicitly taught speaking or grammatical rules. This is consistent with second language immersion education such as FI. In an international study examining the teaching and learning of French as a foreign language, Carroll (1975) found that while there were several contributing factors related to the L2 outcomes of foreign language learners, the most critical factor was time learning the language. Furthermore, Genesee (1978) suggests that findings indicating that early immersion programs result in greater French language proficiency may be a result of the increased exposure to the L2 and not children’s increased ability to learn languages in the early years. Strengthening this idea are Swain’s (1978) results comparing French outcomes of children in early total and partial immersion programs, which demonstrated that children in the total immersion program developed French language abilities more quickly than those in the partial immersion program. Taken together, this research suggests that being exposed to French all day, every day, will result in greater French language abilities for kindergarten students in the new FI FDK program.
If in fact, children in full-day FI programs do demonstrate increased French language abilities, then Cummins’ (1979; 1981b) linguistic interdependence hypothesis becomes particularly significant. This theory explains that development of linguistic skills in one language not only promotes proficiency in that language, but that these abilities are transferred to other languages, provided there is adequate exposure to that language, and motivation on the part of the learner. When the theory was originally proposed by Cummins (1979), the focus was on the impact of L1 proficiency on the development of L2; the theory stated that “the level of L2 competence which a bilingual child attains is partially a function of the type of competence the child has developed in L1 at the time when exposure to L2 begins” (p.233). However, more recently, this theory has been extended to examine the reverse phenomenon, suggesting that for children attending school in a second language, L2 instruction not only promotes L2 language abilities, but that “it is also developing a deeper conceptual and linguistic proficiency that contributes significantly to the development of literacy in the majority language” (Cummins, 1998, p.37). In the context of FI, where French represents the L2, this would imply that children attending school in French and developing early reading and writing abilities in their L2 would be able to transfer these skills to English (L1), assuming they were exposed to that language (which was the case for all participating children in the current study) and were motivated to learn it. Given the positive impact of increased L2 exposure on L2 language abilities discussed previously, the linguistic interdependence hypothesis postulates that with their increased L2 abilities, children in FI FDK programs will also have increased L1 (English) language abilities.

Vygotsky’s theory of the central role of play in development, as well as the theories associated with second language learning, demonstrate the potential impact of play-based, full-day French immersion kindergarten on children’s academic outcomes and their early school
experiences. In light of the introduction of FDK in Ontario, it is crucial to examine children’s experiences in the full-day program as well as its impact on their learning and development. Furthermore, given that existing research on full-day learning has been primarily conducted in English language environments (e.g., da Costa, 2006; Cooper, Allen, Patall, & Dent, 2010; Pelletier, ongoing), or bilingual, half-day French and half-day English programs (Cummins, 1981a), the implementation and outcomes associated with FDK in FI contexts warrant greater attention. The lack of an FI kindergarten curriculum in Ontario amplifies the need for such research, as educators have more time and fewer guidelines in terms of what they must teach and the expectations the students must meet by the end of the academic year.
Chapter 2: Literature Review

The literature review is divided into three major sections. The first examines research in the area of full-day and half-day kindergarten, with a focus on children’s outcomes and experiences in both programs. The second section reviews the role and impact of play in early childhood. The final section discusses research in the area of French immersion education. The chapter concludes by describing the research questions addressed in this study.

2.1 Full-day and half-day kindergarten

Full-day kindergarten programs, while relatively new in Ontario, have been implemented across North America for the past 30 years for a variety of reasons: to integrate early childhood services to make them more accessible to parents (Corter & Pelletier, 2010; Pelletier & Corter, 2005), to narrow achievement gaps between children from low- and high- socioeconomic status backgrounds, to increase educational achievement among all students, and to better prepare children for their entry into Grade 1 (DeCicca, 2007; Lee, Burkham, Ready, Honigman, & Meisels, 2006).

This section of the literature review begins by examining the research on child outcomes in FDK programs as compared to those in half-day programs. Both academic and social outcomes are discussed, as well as outcomes for additional language learners. Children’s experiences in full-day and half-day kindergarten programs are also reviewed and compared from the perspectives of key stakeholders (children, parents, and educators). Finally, programming and curricula in both full-day and half-day kindergarten classrooms are considered.

2.1.1 Academic outcomes
As FDK programs have been in place in other provinces across Canada as well as throughout the United States, there have been numerous studies demonstrating the academic growth of children in FDK compared to children in half-day programs. In a meta-analysis of 23 studies examining academic outcomes in full-day and half-day kindergarten programs, Fusaro (1997) concluded that children who attend FDK programs achieve higher academic outcomes than those in half-day programs. More recently, Baskett, Bryant, White, and Rhoads (2005) assessed kindergarten children on eight educational measures and found that children in FDK programs scored higher on four of the eight measures (literacy skills, letter sounds, story sequence, and following directions). On the four remaining measures (reading level, alphabet recognition, working left to right, and creating patterns), there were no significant differences between children in full-day and half-day programs. Using the Dynamic Indicators of Basic Early Literacy Skills (DIBELS), Carnes and Albrecht (2007) found that children in FDK programs scored higher than those in half-day programs on certain areas of literacy (initial sound fluency and phoneme segmentation fluency), but that other areas such as nonsense word fluency and letter naming fluency did not reveal program differences. Zvoch, Reynolds, and Parker (2008) also used the DIBELS to compare literacy outcomes of children in full-day and half-day kindergarten programs. They found that while overall, children in FDK programs demonstrated greater growth in literacy abilities over the kindergarten year, there was a negative relationship between class size and literacy gains in full-day classrooms. The positive effect of FDK on literacy growth was only evident in average (20-24 students) and below-average (fewer than 20 students) size classrooms.

A study by Gullo, Bersani, Clements and Bayless (1986) compared not only the academic achievements of children in full-day and half-day kindergarten, but included a third group of
children attending a full-day alternating day program. This model has been adapted in some school boards across Ontario as their half-day program, including the school board in the current study; therefore, Gullo et al.’s results are of particular relevance. Their study used the Metropolitain Readiness Test (MRT) to assess children’s academic achievement in the three kindergarten models. Findings revealed no differences between children in half-day and alternating-day programs at the end of the kindergarten year; however, children in FDK programs scored significantly higher than children in either of those groups.

A comprehensive study by Elicker and Mathur (1997) included child academic outcomes as one variable in their evaluation of an FDK program in the Midwestern United States. This study included two cohorts of children who were randomly assigned to full-day and half-day kindergarten programs, and used the participants’ kindergarten report cards as well as Grade 1 readiness ratings completed by teachers to assess program impact on academics. While kindergarten report cards were used for both cohorts of child participants, the authors explain that report card formatting changed over the two years, from an academic to a developmental focus. Findings from the first year of the study revealed that the only significant difference between children in full-day and half-day programs on the academic report card was that children in half-day kindergarten received higher grades for work habits. However, when the children from the second cohort were compared using the developmental report card, children from full-day programs were graded higher on four out of five areas (literacy, math, general learning, and social skills). The fifth area, physical development, showed no differences between children from half-day and full-day programs. Finally, children from full-day programs in both cohorts received higher ratings of readiness for Grade 1 than children from half-day programs. In other words, while FDK had little effect (either positive or negative) on children when they were
assessed from an academic viewpoint, the benefits of FDK were evident when children were assessed from a developmental perspective.

Much of the research that focuses on academic results is longitudinal in nature, examining not only outcomes in kindergarten, but also through the early primary school years. One study, carried out by the American National Institute for Early Education Research (NIEER), found that when randomly assigned to full-day, extended year preschool (equivalent to junior kindergarten in Ontario) programs or regular half-day programs, children in extended duration programs not only scored higher on verbal and mathematics measures at the end of the preschool year, but experienced greater gains over the course of the year. These children were followed through kindergarten and Grade 1, and while not all advantages held, children from extended preschool programs continued to score significantly higher on receptive vocabulary and applied problem solving (Robin, Frede, & Barnett, 2006). Pelletier’s ongoing research (2012a, 2012b, 2014) follows two cohorts of children from kindergarten through Grade 2. The first cohort was recruited during the first year of FDK implementation and the second cohort during the third year. This study revealed that children from full-day programs achieved higher results on measures of vocabulary, reading, writing, and number sense, but that only the increased vocabulary scores were maintained through Grade 2. This research also revealed differences between FDK cohorts, with children from the second cohort achieving higher scores on measures of phonological awareness, number sense, writing, and drawing complexity (i.e., the integration of different elements of the drawing and the number of objects and details included). The fade-out of early benefits of FDK programs was not found uniquely by Pelletier; many other studies investigating the longitudinal impact of FDK have yielded similar results. In a retrospective study, Wolgemuth, Cobb, Winokur, Leech, and Ellerby (2006) found that children who attended
FDK programs scored higher in reading and mathematics at the end of kindergarten and at the beginning and end of Grade 1; however, by the beginning of Grade 2, these differences were no longer significant. This study investigated possible reasons for the disappearance of the FDK advantage by interviewing kindergarten teachers. Teachers reported lack of differentiated instruction beyond kindergarten years, natural child development occurring between kindergarten and the early primary grades, and individual student attributes.

Da Costa (2006) carried out a longitudinal study in Alberta that focused specifically on literacy outcomes of students in half-day and full-day kindergarten programs, and followed two cohorts of participants until Grade 3. Findings from this study indicated that children in the full-day program experienced greater literacy gains over the course of the kindergarten year. When comparing the programs, the author also acknowledged that the FDK schools involved in the study were inner-city schools serving mainly economically disadvantaged families. The half-day schools, on the other hand, were located in suburban neighbourhoods and were comprised of a mixture of students representing different ethnicities and socioeconomic status (SES). When comparisons in literacy skills were made at the beginning of the kindergarten year, it was found that students in half-day kindergarten programs from higher SES families had higher scores on all emergent literacy abilities with the exception of book reading level, on which there were no differences. However, over the course of the kindergarten year, students in FDK from lower SES families caught up to, and then surpassed their half-day peers in all areas except book reading level, where there were again no differences. When comparing students’ literacy skills at the Grades 1, 2, and 3 levels, there were no significant differences between the two groups. However, the author suggested that FDK has an important impact for children from low SES families, as these children began kindergarten with significantly lower literacy skills and yet
performed at the same level as their peers from high SES families in the early primary years. Milligan (2012) conducted research in California using standardized assessments in Grade 2 to determine whether there were differences in language arts and math achievement between children who had attended full-day and half-day kindergarten programs. This study used academic data at one time point only, Grade 2, and found that there were no significant differences in scores between children who had attended full-day or half-day programs on the language arts or the mathematics standardized tests. Cooper, Allen, Patall, and Dent (2010) demonstrated similar findings in their meta-analysis of the research comparing full-day to half-day kindergarten programs. Their results indicated that while children in FDK programs showed early academic advantages, children in half-day kindergarten demonstrated a stronger growth trajectory and generally made up for the early advantage by Grade 3. Finally, Cryan, Sheehan, Wiechel, and Bandy-Hedden (1992) compared three different kindergarten scenarios: full-day every day, half-day every day, and full-day on alternating days. These authors examined not only academic achievement, but also children’s behaviour patterns in kindergarten. This study revealed that children in full-day every day kindergarten programs demonstrated the greatest academic gains over the course of the kindergarten year and that these gains lasted through the end of Grade 1.

Several studies have used data from the Early-Childhood Longitudinal Study – Kindergarten (ECLS-K), a national study from the United States that examines children’s school experiences from kindergarten through Grade 8 in order to compare full-day and half-day kindergarten programs. Using these data, Chang and Singh (2008) found that children in FDK programs began kindergarten with higher scores in both reading and mathematics, and showed greater growth rates in both subjects, than children in half-day programs over the kindergarten
year. Research by Lee, Burkam, Ready, Honigman, and Meisels (2006), yielded similar results; however, these authors found that there was a differential effectiveness of FDK in certain settings. This study demonstrated that attending an FDK program did not have the same academic impact for children in the western United States, where FDK programs are less common, or for children in schools enrolling 51-75 percent minority students. In both of these situations, there were no differences in reading or mathematics outcomes between children in half-day and full-day kindergarten programs at the end of the kindergarten year. In a study examining both academic and behavioural effects of FDK from kindergarten through Grade 3, Cannon, Jacknowitz, and Painter (2006) used data from the ECLS-K and found that at the end of kindergarten, children from full-day programs had higher scores in both reading and mathematics. However, by the end of Grade 1, there was no longer any effect of attending FDK on reading scores, and the effect on mathematics was reduced by half. By the end of Grade 3, there were no longer any significant effects of attending FDK on children’s mathematics achievement. In their study comparing early academic outcomes and growth trajectories of students in full-day and half-day kindergarten programs, Votruba-Drzal, Li-Grining, and Maldonado-Carreno, (2008) also used ECLS-K data to follow children from kindergarten through Grade 5. The findings from this study indicated greater growth in both reading and mathematics for children in FDK programs. The authors of this study noted not only the fade-out of the FDK advantage by Grade 3, but also that children from half-day kindergarten programs began pulling ahead of FDK children at this point, and this trajectory continued through to Grade 5. They suggested that, while FDK may give some children an initial boost, it will not change their academic trajectory, as there are important child and family variables that play a role in a child’s academic outcomes. DeCicca (2007) used three cohorts of ECLS-K data to examine
effects on particular groups of children in kindergarten and in Grade 1. This study broke participants down into three cultural groups – white, black, and Hispanic – and then examined gender differences within each group. DeCicca found that among all three groups, children in FDK programs scored higher on reading and math at the end of kindergarten than children in half-day programs, and that this difference was highest among Hispanic children, followed by white children. As well, at the end of kindergarten, the differences between full-day and half-day programs were greater among boys in mathematics. In reading, program differences were greater for boys among white children, greater for girls among Hispanic children, and there were no gender differences among black children. However, by the end of Grade 1, DeCicca found that all program differences had vanished. The author suggested it is important not only to examine whether program differences are maintained, but also to specifically pinpoint when the fade-out occurs. This study examined this question among the three groups of children and found that among black children, the gains disappeared over the summer between kindergarten and Grade 1, whereas for white and Hispanic children, the fade-out occurred during the Grade 1 academic year.

While the majority of studies reveal fade-out effects of the gains made over the kindergarten year, some research has shown a more lasting impact of FDK programs. In one of the few studies revealing effects of FDK programs lasting beyond Grade 1, Gullo (2000) found that in Grade 2, students who had attended FDK scored significantly higher on standardized measures of math and reading than students who had attended a half-day program. Furthermore, this study demonstrated that fewer children who attended FDK programs were retained during their first three years of schooling, and that they were absent from school less than children who had attended half-day kindergarten programs. Weiss and Offenberg (2003) found that students
who attended full-day programs scored higher in Grade 3 in the areas of reading, mathematics, and science than children who had attended half-day programs. Further, children from full-day programs were significantly more likely to be achieving at grade level in Grade 3 than children who had attended half-day kindergarten programs.

In summary, research examining academic effects consistently reveals higher outcomes from children from FDK programs at the end of the kindergarten year, and typically through to Grade 1. Beyond Grade 1 however, research is inconsistent as to the lasting impact of FDK programs on academic achievement. It is important to note that children can be enrolled in FDK programs for a variety of reasons. In some cases, parents have selected the program intentionally, in others; the program has been strategically implemented in particular school districts. In most cases, children are not randomly assigned to FDK programs, meaning that there are conceivably social and demographic factors associated with children in FDK programs which also play a role in their academic success (Votruba-Drzal, Li-Grining, & Maldonado-Carreno, 2008).

2.1.2 Social outcomes

While academic outcomes have been a focus of much of the research related to FDK, social outcomes are equally worthy of consideration, particularly because Ontario’s FDK curriculum highlights the development of emotional and social competence as one of its program aims (Ontario Ministry of Education, 2010a). Several of the studies mentioned above also included components of social or behavioural outcomes. The study carried out by Cryan, Sheehan, Wiechel, and Bandy-Hedden (1992) included a measure of social development in which children were rated by their teachers on both positive behaviours (i.e., independent learning and originality) and negative behaviours (i.e., irrelevant talk, social dependency). Findings from this study demonstrated that positive behaviour patterns were positively
associated with FDK programs and negative patterns negatively associated with FDK.

Furthermore, none of the behaviour dimensions measured was more positive for children in half-day or full-day alternating day programs. Elicker and Mathur (1997) found that children in FDK programs received higher grades on their kindergarten report card focusing on developmental areas than children from half-day programs. Pelletier’s longitudinal study (2012a, 2012b, 2014) also includes measures of social development (i.e., children’s friendships and play experiences), such as the content of kindergarten children’s drawings, child interviews which ask children about social scenarios, and a self-regulation task. Findings from this longitudinal study demonstrated that there were no program differences in terms of what social aspects of school children represented in their drawings or talked about in their interviews – children in both full-day and half-day kindergarten programs discussed play more often than anything else (i.e., academic topics, teachers). However, children from FDK programs reported that play was the most important aspect of kindergarten in contrast to children from half-day programs who reported that learning was most important (Heagle, Timmons, Hargreaves, & Pelletier, 2016). Further, when comparing children using a measure of self-regulation examining attention, working memory, and inhibition (the Head-Toes-Knees-Shoulders task), children in FDK scored significantly higher than children in half-day kindergarten.

Cooper, Allen, Patall, and Dent (2010) also included a social component in their meta-analysis of research in the area of FDK, where non-academic outcomes such as self-confidence, ability to work or play with others, and independence were examined. Findings from this meta-analysis indicated a significant positive effect of FDK on both self-confidence and the ability to work and play with others; however, no program differences were found in terms of child independence. Carnes and Albrecht (2007) used the Developmental Assessment of Young
Children (DAYC) as a measure of children’s social-emotional development and found that children in FDK programs learned appropriate social behaviours and routines and experienced greater social-emotional growth over the kindergarten year. This study sought information from educators about possible explanations for these findings, and kindergarten teachers attributed these social gains to more time spent on play and social activities, and more occasions for interactions between children. Finally, Cannon, Jacknowitz, and Painter’s (2006) research included measures of internal (i.e., low self-esteem, anxiety) and external (i.e., fighting, acting impulsively) behaviour problems. Their findings, which favoured children in FDK programs from an academic perspective, revealed contrasting results when it came to behavioural outcomes, with children from FDK programs demonstrating external behavioural problems significantly more often than children from half-day programs. The research revealed no program differences with regard to internal behaviour problems.

2.1.3 Outcomes for additional language learners

Much of the research involving FDK has focused on specific populations of children, in particular those from low socioeconomic families (i.e., Brownell et al., 2014; Nowak, Nichols, & Coutts, 2009) and children attending school in their non-native language (i.e., Bingham & Hall-Kenyon, 2013; Cannon, Jacknowitz, & Painter, 2011). While participants in the current study were neither from low SES families nor English Language Learners (ELLs), this research investigates child outcomes in two contexts, full-day and half-day FI, where children are native speakers of English, but are attending school in a second language (French). Therefore, findings related to additional language learners in FDK are relevant to the current study and are examined in this section.
In a study conducted in British Columbia, Warburton, Warburton, and Hertzman (2012) investigated whether attending FDK had an impact on academic outcomes in Grade 4 for two specific populations: Aboriginal and ESL students (i.e., children who live in households where English was not the language spoken). This research examined FDK programs targeted intentionally at these groups; rather than comparing outcomes of children who attended FDK with children who attended half-day programs, the authors focused instead on whether the Grade 4 outcomes for children who attended FDK were better than they would have been in the absence of FDK. The reason for this investigation was that, given the fact that the populations in question were considered disadvantaged, and the targeted FDK program could be seen as ‘remedial’, it was not surprising that in Grade 4, the FDK populations would have lower scores in reading and mathematics than children from non-disadvantaged populations who had attended half-day programs. Warburton et al.’s study reveals that FDK does improve outcomes for children from disadvantaged communities in British Columbia, and that the impact is greater on reading than numeracy. This study demonstrates the importance of understanding the populations involved in evaluating the impact of FDK programs. Noteworthy in this study is that the targeted populations experiencing FDK benefited from the program and would likely not have achieved the scores they did in Grade 4 without it.

Cannon, Jacknowitz, and Painter (2011) also focused research on FDK specifically on outcomes for ELLs. In a longitudinal study following children from kindergarten through Grade 3, the authors found that there were no program effects on academic outcomes in Grades 1 or 2; however, at the end of kindergarten, children in full-day programs scored significantly higher on reading skills assessments when compared to children in half-day programs. While there were no lasting academic effects of kindergarten program, Cannon et al. did find that children who had
attended FDK programs were less likely to be retained in kindergarten or Grade 1 than children who had attended half-day programs. This study also found that the benefits of attending FDK programs differed among specific populations of ELLs. For example, findings revealed that ELLs whose parents did not finish high school benefited more from FDK than children whose parents had a college education in the areas of reading skills in kindergarten and Grade 1, and in the area of English language development in Grade 1.

Again focusing specifically on ELLs, Hall-Kenyon, Bingham, and Korth (2009) found that while all children who experienced FDK programs experienced greater gains in literacy than those who attended half-day programs, ELLs benefited more in the area of receptive vocabulary than children who spoke English as a first language. The authors attribute this finding to the increased exposure to English that ELL children experienced in FDK settings. As well, teachers who were interviewed for the study remarked that additional time for learning and playing in English was extremely beneficial for their ELL students. This study revealed no significant effect of program on math outcomes. Bingham and Hall-Kenyon (2013) carried out another study focusing on outcomes for language learners in FDK programs. That study assessed children in the fall and spring of the kindergarten year, and used the fall scores as covariates in the analysis examining spring outcomes. Findings revealed that at the beginning of kindergarten, children from half-day programs and children who spoke English as their first language scored higher on measures of literacy and mathematics than children from FDK programs and ELLs. Using these scores as covariates in the analyses of spring outcomes allowed for understanding not only differences in outcomes, but also differences in growth over the course of the kindergarten year. Results from the analyses at the end of the kindergarten year indicated that children from FDK programs scored higher on measures of both literacy and mathematics. In terms of linguistic
background, children who spoke English as their first language continued to outscore ELL children in literacy; however, ELL children scored higher than English first language children on measures of mathematics.

2.1.4 Children’s experiences in full-day kindergarten programs

While there are clear reasons to investigate academic and social outcomes of FDK programs, understanding children’s experiences in these programs can also provide valuable information about the types of teaching and learning that occur, and specific factors that lead to the program’s success. Children’s experiences can be understood from a variety of stakeholder perspectives: educators, parents, and of course, children themselves.

Children’s perspectives

Many researchers emphasize the equal importance of understanding children’s experiences in their schooling by involving the children in research (Clark, 2010; Dockett & Perry, 2005b; Einarsdottir, 2010; MacDonald, 2009). This has been done through drawings (Dockett & Perry, 2005a; Einarsdottir, Dockett, & Perry, 2009; Pelletier, 2012a, 2012 b, 2014) as well as interviews with children (Dockett & Perry, 2007; Pelletier, 2012a, 2012b, 2014; Smith, Duncan, & Marshall, 2005). Cugmas’ (2004) study asked kindergarten-aged children to draw themselves in their kindergarten classroom, along with their teacher, a peer, and a toy. Teachers were also asked to fill out questionnaires related to the children’s attachment and social behaviours. This study found that children’s social behaviour and attachment to their kindergarten teacher were represented in their drawings. Many specific associations were made between the content of the children’s drawings and their behaviours as rated by their teachers. For example, teachers rated avoidance patterns more highly for children who drew vehicles or creative toys than those who drew stuffed animals. In another study, Cherney, Seiwert, Dickey,
and Flichtbeil (2006) asked children between the ages of five and thirteen to draw their family and their school, and found significant differences in gender and age (favouring girls and older children) in the amount of detail included in the drawings. This study also revealed that girls were more likely than boys to draw clothing and to draw proportionate figures. In a study investigating children’s understanding of their own learning, Smith, Duncan, and Marshall (2005) implemented various methods with children in order to understand which would provide the greatest insight into their experiences in school. These included focus groups of children with and without a teacher present, direct interviews with children (independently, with a friend present, and with a parent present), and informal conversations with children. The study found that parental insight complemented and supported the children’s accounts of their learning. While this research revealed that all forms of children’s input in research were useful, the findings suggest that talking to children directly is the best way to gain their perspectives.

In a study more directly relevant to the current research, Potter and Briggs (2003) interviewed 5- and 6-year-old children about their experiences in school. Specifically, children were asked whether they liked school, aspects they liked and disliked about school, and what their teachers did. Findings from this study revealed that two thirds of children responded that they liked school, while one-third responded that they did not (with girls accounting for more of the positive answers and boys accounting for more of the negative answers). As well, results showed that the older children in the study (6-year-olds) liked school less than the five-year-olds. Children indicated activities of their choice, playing with friends, and teacher praise as being the aspects they liked best about school, and work as the aspect they liked the least. Finally, when asked about their teachers, children indicated they liked when they were taught in fun ways, when they were praised or rewarded for their work and their effort, when they felt cared for and
helped by their teacher, and when they were given free choice for activities. Children noted that they felt sad or upset when their teachers yelled at the class or gave punishments. Children also revealed that they felt they needed to be well-behaved, do good work, and listen to rules in order to please their teacher.

Parents’ perspectives

While Smith et al.’s (2005) findings demonstrate the importance of including children’s voices in early childhood research, many studies relating to FDK programs have included parent voices as well. These include understanding the parent experience of full-day kindergarten (Baskett, Bryant, White, & Rhoads, 2005; Pelletier, 2012a, 2012b, 2014), as well as parent perceptions of the children’s experience in FDK (Baskett et al., 2005; Carnes & Albrecht, 2007). Baskett et al.’s study indicated that parents found full-day kindergarten programs to be more convenient, and that while parents had reservations at first, they observed their children growing and flourishing over the course of the year. However, not all parent comments were positive as some mentioned the full day being too long for their child and that they often arrived home at the end of the day tired and irritable. Carnes and Albrecht (2007) also had parent participants who indicated initial concern with the length of the school day in full-day programs, but ultimately were impressed by their children’s growth over the course of the program. Finally, Elicker and Mathur’s (1997) study included parent surveys, which asked parents to describe their children’s experiences in kindergarten (both half-day and full-day), rate their satisfaction with their children’s kindergarten program and curriculum, and indicate whether they would choose a half-day or full-day kindergarten program for their child, if given the option. Findings indicated that parents of children in FDK were in support of the program, explaining that they believed FDK allowed their child to explore and learn on a deeper level, gave the teacher more time to know
their child, and had a positive impact on their child’s social development. While parents of children in half-day kindergarten programs also indicated that they were generally happy with their child’s program, some felt the day was too short to really meet their children’s needs and that a half day of school presented challenges to child care. Parent ratings of program and curriculum satisfaction were consistently in favour of FDK, and all parents of children in full-day programs indicated that they would choose full-day over half-day programs, with more than 48% in half-day programs in the first year of the study and 72% in the second year indicating that they would also choose full-day programs for their children given a choice.

Educators’ perspectives

The importance of educators’ perspectives of FDK programs cannot be overlooked. Educators are responsible for program planning and implementation, as well as assessing children’s growth and abilities. Furthermore, many educators in FDK programs have also been involved in half-day kindergarten and are able to make authentic comparisons between the two programs. As a result, many studies investigating the impact and outcomes of FDK programs include educators as participants. Carnes and Albrecht (2007) included both kindergarten and Grade 1 teachers’ perspectives in their study of FDK. This study used teacher interviews as a way of understanding and explaining results from child measures (academic and socio-emotional). Grade 1 teachers were included, as they were asked to share their opinions of what their students were like in the fall of Grade 1, after having experienced the FDK program. This study showed that teachers attributed increased academic achievement both to the fact that children were not rushed in their learning, and could remain focused on a skill or subject longer than would be allowed in a half-day program, and the program was less structured so if children were very engaged in a particular area, they could continue with it as there was more time.
Further, teachers described increased socio-emotional growth in their students and attributed this to greater chances for play as well as for interacting with more peers than one would in a half-day program (where they might play repeatedly with the same peers). In a survey asking teachers to comment on the impact of FDK programs, Baskett, Bryant, White, and Rhoads (2005) found that three areas were affected (either positively or negatively): behaviour, academic achievement, and social relationships. Overall, survey results indicated that teachers noticed increased academic achievement in their students, and attributed this to the additional time the children had to process new information and to the additional time teachers had to support their students’ learning and play. In terms of social relationships, teachers’ responses were also consistent, and revealed that in FDK programs, there was time to build stronger classroom communities, which increased communication with the families of their students. However, with regard to student behaviour in FDK programs, teachers’ survey responses were mixed. Some found increased difficult behaviours in the full-day program, whereas others noted increased positive behaviours.

Wolgemuth, Cobb, Winokur, Leech, and Ellerby’s (2006) study of FDK focused primarily on children’s academic outcomes. However, once the child assessments were completed (results were discussed earlier), the authors conducted follow-up in interviews with kindergarten teachers in order to understand the results (higher academic outcomes for FDK students at the end of the kindergarten year, but with these advantages fading by the end of Grade 1). Findings from the interviews revealed that teachers attributed the fade-out effect to a lack of differentiated instruction in the classroom as well as a lack of parent involvement beyond the kindergarten level. Finally, Elicker and Mathur’s (1997) evaluation of FDK included teacher interviews. Findings from this study revealed that teachers from both full-day and half-day programs were in support of FDK for several reasons, including the additional time for children
to explore their interests and engage in meaningful social interactions, and for teachers to get to know the students and their families. The only negative aspect of FDK reported by the teachers was that at the beginning of the school year, children were often tired by the end of the day. However, teachers noted that by the middle of the school year, this was no longer an issue.

2.1.5 Kindergarten curricula in full- and half-day programs

While an obvious difference between full-day and half-day kindergarten programs is the amount of time children spend in school, what children do during that time is also important in order to understand and assess program outcomes. Simply increasing the amount of time children spend in school will not, on its own, result in academic or social-emotional gains for students. It is important to ensure that the increased time be spent on meaningful learning activities for children.

Elicker and Mathur’s (1997) study highlights the importance of investigating not just the outcomes of kindergarten programs, but also the content of these programs. Using the Early Childhood Classroom Observation System (ECCOS), they conducted classroom observations of children in both full-day and half-day programs. Their observations revealed that while children in both full-day and half-day programs spent the most time in large group teacher-directed activities, children in full-day programs spent relatively less time in these activities than did children in half-day programs. Furthermore, children in full-day programs also spent more time engaged in child-initiated activities and teacher-directed individual work. This finding is noteworthy, as Timmons, Pelletier, and Corter (2016) have shown that children demonstrate the highest engagement during episodes of small-group instruction and play; and the lowest engagement during periods of whole-group instruction.
2.2 Play in early childhood

The FDK program being examined in this study consists not only of a longer school day for children, but also a new curriculum grounded in the concept of play-based learning. This does not change the learning goals for children by the end of their kindergarten experience; rather it changes the method for achieving these goals. The curriculum explains that, “Play is a vehicle for learning and lies at the core of innovation and creativity. It provides opportunities for learning in a context in which children are at their most receptive.” (Ontario Ministry of Education, 2010a, p.13).

2.2.1 Play-based learning

Much research has focused on the importance of play in early childhood. Canning (2007) argues “Because children are the active participants they have autonomy over their play and this is one of the most empowering experiences a child can have” (p. 228). Her research suggests that as a result of this empowerment, young children develop a sense of self and of others. Miller and Almon (2009) reviewed nine studies focusing on the role of play in early childhood programs in the United States. Findings highlight two important themes. The first is a greater focus on direct instruction of literacy and numeracy and test-related activities because of the emphasis on high stakes testing. The second is that young children benefit greatly from opportunities for play, small-group activities, and the chance to choose the activities in which they engage. This report suggests that an ideal kindergarten environment is one where the teacher has high input and the child has high initiative, and where child-directed play and focused learning through play are integrated. Myck-Wayne’s (2010) research, intended to support and defend the role of play in early childhood programming, suggests that one reason for the lack of play in some programs is that it is difficult to understand and assess the learning that occurs. Myck-Wayne identifies a
variety of learning opportunities that take place during play activities, such as cooperation, vocabulary development, and problem-solving skills. The study stresses the importance that teachers understand how play fits into their programs and how they can best support children in play, by incorporating it into the curriculum and recognizing its value.

While research generally supports the idea of play in early childhood education programs, there appears to be a difference in how play is implemented in classrooms (Pyle & Bigelow, 2015; Synodi, 2010). In a study examining quality indicators of early childhood programs, Van Oers (2003) demonstrated that play signifies quality in early education “if it stimulates young children’s cultural learning processes and integrates the interests of both pupils and educators as cultural representatives” (p. 9). This research presents a model which identifies developmental appropriateness and cultural validity as the two key factors for effective learning in the early years. The model further pinpoints three aspects of developmental appropriateness: a leading activity shared between the educator and the children, activities which fall within the children’s zone of proximal development, and the guarantee of children’s well-being and involvement. From the cultural validity standpoint, social norms and community values, knowledge and abilities demanded for participation, and attitudes required for autonomous participation are highlighted as key for effective learning to take place. Finally, the study discusses three criteria for play to effectively contribute to children’s learning: understanding the rules, allowing children degrees of freedom in their play, and children’s voluntary participation in the play activity. After identifying the indicators for effective play in the early childhood classroom, the author followed children for three years (from ages five through seven years) from classrooms in which teachers practiced this type of play-based learning. Results indicated
that, while children did not score higher than average on tests of literacy or mathematics, their teachers rated them more highly on their interest and motivation to pursue literacy activities.

In further studies, van Oers (2012) described a play-based curriculum as “not just a curriculum that allows children to play at some moments (in addition to learning and work)” (p. 24) but rather one where “playfulness is an essential characteristic of all children’s activities and opportunities for teaching may be embedded in these activities at moments that make sense for the pupils” (p. 24). Van Oers and Duijkers (2013) continued to adopt this definition of a play-based program in their longitudinal study of children’s vocabulary development in early primary grades in the Netherlands (ages four to six years old). The authors examined the differences between vocabulary instruction in teacher-directed versus play-based settings and found that after three weeks, children from play-based programs experienced greater growth in both passive and active vocabulary, semantic understanding, and proper use of newly acquired words. The authors suggested that in play-based programs, children acquire new words as “tools for communication and joint exploration and regulation of the activity” (p. 531), which is more meaningful than simply learning words for its own sake.

In studies examining play in kindergarten classrooms, both Synodi (2010) and Pyle and Bigelow (2015) identified three categories of play. Synodi, whose research took place in Norway, Sweden, New Zealand, and Japan, focused on approaches to play in the kindergarten classroom and her research highlights three particular models: child-directed, teacher-directed, or mutually-directed. Synodi suggests that for a classroom to employ a pedagogy of play, there must be evidence of all three approaches. This study reviewed kindergarten curricula from each of the participating countries to determine whether their programs truly employed a pedagogy of play. Pyle and Bigelow (2015) examined three kindergarten classrooms in Ontario, each
implementing a full-day, play-based kindergarten curriculum. It should be noted that both the province and the curriculum examined in this research are the same as those investigated in the current study. By conducting classroom observations and interviewing both students and educators, the authors of this study identified three approaches to play carried out in kindergarten classrooms: play as peripheral to learning, play as a vehicle for social and emotional development, and play as a vehicle for academic learning. This study demonstrates the importance of clarifying what “play-based learning” means, as each of the educators in the study interpreted the role of play in their classrooms differently, even though they were all implementing the same curriculum.

Walsh, Sproule, McGuinness, Trew, Rafferty, and Sheehy (2006) conducted a comparison between play-based and more formal early childhood programs in Northern Ireland using the Quality Learning Instrument (QLI) – a tool that involves structured classroom observations and evaluates factors such as student motivation, concentration, and higher order thinking skills. In play-based classrooms, teachers implemented an enriched curriculum (EC), which the authors describe as a program that emphasizes “the importance of play, oral language and phonological awareness for the development of literacy, attention, concentration and memory skills, physical confidence and competence, and the children’s ability to build social relationships and to co-operate with one another” (p. 203). These authors found that in EC classrooms, children scored higher on all aspects of the QLI than those from classrooms implementing a more traditional curriculum. A follow-up study by Walsh, McGuinness, Sproule, and Trew (2010) assessed the EC program four years after its original implementation. The authors highlighted several strengths of the EC program, including the higher quality of learning experienced by students, and the ease of children’s transition to formal schooling by
incorporating developmentally appropriate practices. However, the authors also identified some weaknesses of the program, specifically the fact that educators seemed to have different ideas of what constitutes developmentally appropriate practice and that in some instances, this resulted in lower literacy scores for students from EC classrooms. Findings from this study led the researchers to suggest that more clarification and elaboration is required in order for educators to understand what is meant by play-based education and how to connect play and learning in meaningful ways.

2.2.2 The impact of play on children’s development

There is much research supporting the practice of play as a vehicle for learning, with different types of play being thought to benefit particular areas of development. Several studies have examined children’s pretend play and its impact on cognitive development (e.g., Bergen, 2002; Dockett, 1998). Lillard (1993) defines pretend play as “the projecting of a supposed situation onto an actual one, in the spirit of fun rather than for survival” (p.349). In other words, pretend play occurs when children are using pretense not because it is required of them, but because it is part of a play activity (such as playing the role of a doctor or a nurse in a hospital centre). Dockett (1998) found that certain aspects of shared pretend play (when children are engaging in pretense in together), provides opportunities for cognitive conflict, social interaction, and verbal communication, which promote the development of representational theory of mind. In a review of the literature on pretend play and cognitive development, Bergen (2002) revealed that high-quality pretend play in early childhood leads to the development of certain cognitive abilities, particularly perspective-taking and abstract thought. Finally, Whitebread, Coltman, Jameson, and Lander (2009) conducted three studies with children between the ages of three and five years in order to investigate the impact of play on cognitive development and various self-
regulation skills. Their first study was observational in nature, and involved reviewing videotapes of children’s activities in the classroom and coding their behaviour during these activities according to an analytical model of self-regulation, which included aspects of metacognitive knowledge, metacognitive regulation, and emotional and motivational regulation. Findings from this study revealed that the clearest examples of self-regulatory behaviours, such as application of strategies to new situations, self-monitoring, and strategy adaptation, came when children were engaged in play activities, as well as in instances when children were involved in joint problem-solving scenarios. Furthermore, aspects of children’s metacognitive behaviour were examined in relation to adult involvement in their activity. Results indicated that the higher the level of adult involvement, the greater the evidence of children’s metacognitive knowledge (e.g., demonstrating an understanding of problem-solving strategies). Conversely, the more adults were involved in the activity, the less children demonstrated cognitive or emotional/motivational regulation (e.g., monitoring and control of emotions). The second and third studies involved exposing groups of children to novel materials and then putting them in situations of “play” (where they could explore the materials on their own) and “taught” (where they were shown by an adult how to use the materials). In the first study, children were asked to complete an oral storytelling activity using props. Findings from this study demonstrated that children in the play condition showed more confidence in the activity and that their stories included more original conflicts and resolutions and were of higher quality than those in the taught condition. The second study involved children completing both an open-ended and a closed-ended spatial task using magnetic shapes. Results revealed that children in the play condition persevered longer on the open-ended task but shorter on the closed-ended task than children in the taught condition. Other findings included the originality demonstrated (greater in
the play condition for the open-ended task), the number of pieces placed correctly (greater in the taught condition for the closed-ended task) and the level of involvement of the children (greatest in the play condition for the open-ended task).

Not all researchers agree on the association between children’s play habits and their development. Lillard, Lerner, Hopkins, Dore, Smith, and Palmquist (2013) argued that there is no real evidence that engaging in pretend play has a positive impact on children’s development and that studies that claim the opposite do not provide support for causal relationships. Lillard et al. reviewed the research connecting pretend play to various areas of development, and proposed two alternatives: equifinality and epiphenomenon. In the equifinality model, pretend play is highlighted as being one of many possible routes to positive development and the epiphenomenon model suggests that play is a secondary incidence that occurs alongside a primary experience (for example, perhaps parents who encourage positive development also encourage pretend play).

While there is much research connecting children’s play to cognitive abilities, there are other areas of development that also appear to be impacted by play. In a review of research on children’s social skills, Bailey (2002) suggested that play may be an important precursor to the development of such skills. In particular, this study examined theory of mind understanding, or children’s “knowledge and beliefs about the mental world” (Flavell, Green, Flavell, Harris, & Astington, 1995) and its connection to pretend play. The author suggested that, while play habits have previously been considered to be a result of such understanding, it may in fact be the opposite phenomenon: Theory of mind abilities develop as a result of engaging in pretend play. Bailey argues that “it is through play that children first come to understand self-awareness, the distinction between appearance and reality, and possibly even the intentions of others, which
seem to underpin the development of mindreading skills” (p. 169). Ashiabi (2007) also made the connection between play experiences and social and emotional development by reviewing research conducted in these areas. That literature review also explored meaningful ways in which preschool teachers could become involved in children’s play, which would promote the development of social and emotional skills. The study found that engaging in play, specifically sociodramatic play, is beneficial to children’s social and emotional development. Findings revealed that this type of play strengthens, among many aspects of socioemotional development, children’s ability to reflect before acting, to engage in role-playing and perspective-taking activities, and to demonstrate empathy and emotional regulation. Furthermore, play was found to have a positive impact on problem-solving and cooperation abilities. Ashiabi also suggested that preschool teachers promote both child-initiated and teacher-guided play, and that children’s experiences in play be scaffolded in order to ensure opportunities for socioemotional development.

Beyond the areas of cognitive, social, and emotional development, several studies have linked play to children’s academic outcomes, in the areas of literacy and mathematics. With regard to early reading, Christie and Roskos (2006) connected play to four aspects of emergent literacy: oral language, phonological awareness, print awareness, and background knowledge. These authors suggest that engaging in sociodramatic play allows for the development of oral language, particularly when children use language to represent important aspects of the play situation. This results in an increased expressive vocabulary that is positively associated with outcomes on measures of early language abilities in kindergarten (Dickinson & Tabors, 2001). Another critical component of emergent literacy examined by Christie and Roskos is phonological awareness, “the conscious awareness of the sounds of language” (p. 63). The
authors discuss the importance of playing with language by “singing songs, reciting nursery rhymes, reading books that play with the sounds of language, and gamelike activities” (p. 64), which leads to an increased phonological awareness and ultimately, enhances reading abilities. A third aspect of emergent literacy that Christie and Roskos connected with children’s play was print awareness. The authors discuss how to enhance sociodramatic play by including elements related to literacy development. For example, providing relevant writing utensils (i.e., at a post office play center), signage (“mail here”, “line up here”, etc.) exposes children to print in informal ways, allowing them once again to play with it and develop their understanding and awareness. Finally, Christie and Roskos discussed background knowledge as it relates to literacy development. By reviewing literature in the area of sociodramatic play and pretend play, the authors highlight connections between play and the sequencing of events and emphasize the importance of this understanding for later reading readiness skills.

Literacy is not the only academic area that is impacted by children’s play. Research in the area of early mathematics also emphasizes a connection between play and the development of mathematical understanding. In a case study investigating the association between mathematics learning and play, Van Oers (1996) found that play experiences can lead to improved mathematical thinking in children between the ages of four and seven years. In this study, van Oers examined a specific role playing activity in which children and teachers were involved. The study discusses the important role the teacher plays in identifying opportunities for the teaching of mathematical concepts during play. Results suggest that there are many opportunities for the teaching of mathematical concepts during play and that in particular, children’s understanding of symbols and their meanings can be developed through play when teachers take advantage of these opportunities. Teaching opportunities occurred through various interactions, such as asking
questions, reformulating children’s questions and ideas, correcting children or suggesting solutions, and providing new vocabulary. Ginsburg (2006) also found that mathematical learning could take place during play and identified three possibilities for this learning to occur: embedding mathematics into play (such as when children are playing with blocks), play centered on novel mathematical ideas and objects (such as informal counting games), and play centered on mathematical concepts previously taught (such as sorting shapes).

2.2.3 Children’s perceptions of play

Many studies have examined children’s perceptions of play and more specifically, how children differentiate between playing, working, and learning (Howard, 2002; Howard, Jenvey, & Hill, 2006; McInnes, Howard, Miles, & Crowley, 2011). Given that one of the goals of Ontario’s play-based curriculum is to have children learn through play (Ontario Ministry of Education, 2010a), it is important to understand the activities during which children feel they are playing in order to identify ways of incorporating meaningful learning into these experiences.

In several studies examining children’s perceptions of play, researchers have used the Activity Apperception Story Procedure (AASP), which requires children to sort through photographs depicting various classroom activities and categorize them as either play or work, or learning or not learning, and then to justify their choices (Howard, 2002). In one such study, Howard (2002) used the AASP with children between the ages of three and six years. Findings revealed that in almost all cases, children were comfortable distinguishing between play and work, and learning and not learning, and that there was a positive correlation between play and not learning. When asking children to justify their answers, the results showed that children generally categorized an image as work and learning if there was a teacher present and if the activity took place at a table instead of on the floor. Images were more likely to be categorized as
play when there was a positive affect demonstrated by the children in the picture. A similar study conducted by Howard, Jenvey, and Hill (2006) used AASP to specifically examine social cues associated with play and learning with children between the ages of four and six years. Similar to the results described above, this study found that the presence of a teacher strongly indicated whether children would categorize something as work. Furthermore, children were more likely to identify an activity as play if there were peers present in the image.

In an exploratory study investigating both educators’ and children’s perceptions of play and learning, McInnes, Howard, Miles, and Crowley (2011) interviewed educators regarding their theoretical knowledge about play, their planning for play activities, the role of the adult during play, and their overall play practice. The educators were then observed in their pedagogic interactions with children. Findings from this study indicated that in classrooms where educators were aware of the value of play and understood how children can learn through play, the children did not use the cue of adult presence to distinguish between play and non-play situations. However, in classrooms where the educators were unsure of how to implement a play-based program, the children continued to use the presence of an adult as a way of differentiating between a playing and a learning situation. This study demonstrates the importance of the educators’ understanding of play, as it has a direct effect on the child’s perspective of play and learning. Howard and McInnes (2013) highlight the importance of children’s perceiving activities as play rather than non-play experiences in their research with kindergarten children, in which children participated in an activity and were told it was either ‘like play’ or ‘not like play.’ The activity itself remained consistent, it was only the label that changed for different groups of students. The authors of this study found that children demonstrated higher levels of emotional well-being (assessed using the Leuven Involvement Scale) when participating in the activity
when it was labeled ‘like play.’ In particular, these children smiled more frequently during the activity and were more attentive and focused, more motivated, and less distracted. This study reveals that the way in which children perceive an activity has important implications for their emotional well-being and development, and why it is important that the lines between play and work or play and learning become less distinct.

2.3 French immersion

The section begins by describing the context of French immersion in Canada and reviewing the French immersion options available to students. French immersion curricula and teaching practices are then considered, with kindergarten programs examined in greater depth. Finally, children’s outcomes in French immersion programs are discussed, with particular emphasis on literacy development in both French and English, as well as a brief discussion of mathematics. The impact of French immersion programs on cognitive development is also examined.

2.3.1 The context of French immersion

French immersion (FI), developed and implemented in Canada since 1965, is a program designed for students who are not native French speakers but who are learning French as an additional language. What makes immersion programs different from the traditional second language classroom is that students learn most or all subjects in French instead of learning French only in French class (Fortune & Tedick, 2003). There are various entry points for FI programs. In general, early FI begins in kindergarten or Grade 1, middle FI begins in Grade 4 or 5, and late FI begins in Grade 7. School boards vary in terms of when English language arts are introduced into the curriculum for students in early FI programs, and how much instruction is in
French and English once English has been introduced. In general, early FI programs consist of 100% of French instruction in the first few years, with English being introduced around Grade 2, 3, or 4 for one period per day (Cummins, 1998). Swain and Johnson (1997) identified eight core principles that define the program and the roles of both the L1 (first language) and L2 (second language), beyond simply teaching curriculum content in French. The principles are as follows: L2 is the language of instruction, the immersion curriculum parallels the L1 curriculum, there exists overt support for L1, the program aims for additive bilingualism, exposure to L2 is largely confined to the classroom, students enter with similar and limited L2 proficiency, teachers are bilingual, and the classroom culture is that of local L1 community. Three of these principles are examined in further detail.

To begin, FI identifies additive bilingualism as one of its aims; this means that students’ acquisition of French should not come at the expense of the development of their L1 (Cummins, 1998). Rather, students in FI programs should achieve similar levels of fluency in both their L1 and their L2. Given that many parents express concerns about FI programs being detrimental to their child’s English skills (Fortune & Tedick, 2003), the fact that FI is meant to be a program that promotes additive bilingualism should be highly emphasized for all parents. Additional principles identified by Swain and Johnson (1997) that merit closer attention are the notion that the classroom culture is that of the L1 community and that overt support be available in children’s L1. These principles were developed when it was assumed that English was the L1 of the majority (if not the entirety) of students enrolled in FI programs. However, Swain and Lapkin (2005) point out that Canadian demographics are shifting, and that as a result, it can no longer be assumed that the majority of FI students come from families and households where English is the primary language spoken. Therefore, in order to maintain FI as a program that reflects Swain and
Johnson’s eight underlying principles, it must reflect the current sociopolitical context in Canada by recognizing home languages other than English and the role of children’s L1 in the development of their L2.

2.3.2 French immersion teaching practices and curricula

Although as previously indicated, FI programs are required to follow the same curriculum in terms of content studied at each grade level, as that of the local L1 program, much research has focused on teaching strategies used in the second-language classroom and specifically, in the early FI classroom. Cummins (1998) found that teacher-student interactions in early FI classrooms tend to be more teacher-centered than in first-language contexts. Walsh and Yeoman (1999) elaborated on this idea by investigating the opportunities for exploratory talk in FI kindergarten classes. Their case study revealed this as a particular area of weakness in early FI programs by demonstrating that it is challenging for teachers in these contexts to provide opportunities for exploratory or creative conversations, because children have not yet acquired a deep understanding of the working language of the classroom. As a result, the authors found that most oral communication by students in early FI classroom occurs in the form of short, often one-word sentences, reflecting the children’s limited French vocabulary. As well, the study highlighted the fact that often, these one-word utterances are simply a reflection of the words children know and may not actually be the idea that the child is hoping to express, but they are doing the best with what they have. “A child might, for example, respond with ‘bicyclette’ when he or she would really like to say ‘skateboard’ or to give a more elaborate response like ‘I was trying to learn to ride a two-wheeler’” (p. 345). The authors suggest that, while the importance of employing French as the language of communication in early FI classrooms is stressed in the
program documents, there may be a role for English in these classrooms, in order to foster deep thought and conversation.

Other studies have examined the potential role of a child’s first language in second-language classrooms, and this has been investigated particularly in the context of FI. Harley (1993) explored a variety of teaching strategies that could be used effectively in FI classrooms in order to optimize student learning of both the language and the content. This study revealed that there could be a role for a child’s first language in second-language learning contexts. Specifically, Harley examined various teaching strategies in second language classrooms and discussed the idea of an “intralingual-crosslingual dimension” (p. 250), where intralingual means that the child’s first language is not explicitly referred to in the second-language classroom and crosslingual signifies that aspects of a child’s first language are used to help teach similarities or differences in the second language. Harley explains that while intralingual teaching generally seems to be the accepted strategy in immersion contexts, as it allows the students to be “immersed” in the second language, a crosslingual approach may in fact support students’ learning of the second language by allowing them to make connections and comparisons between languages. In their description of FI programs aimed for parents, Fortune and Tedick (2003) explain that at the kindergarten level, children often communicate with each other in English and, in the beginning, when responding to their teacher (even when the teacher initiates communication in French). However, as students progress through the program, they begin to use French more naturally, both in communication with their teachers and their peers. The authors note that many early FI teachers use songs and rhymes as a way of drawing children into the language. Further, early FI classrooms are described as very routine-oriented, so that children can quickly become familiar with the vocabulary related to day-to-day tasks and activities.
2.3.3 **Academic and cognitive outcomes in French immersion**

Among parents considering enrolling their child in FI programs, a common question is how attending school in a second language will affect their child’s outcomes in content areas besides French. Many parents are concerned with whether their children will make the same gains in the areas of mathematics and science as those in typical English programs. Additionally, parents often express apprehension about how attending school in French will affect their child’s English literacy skills (Fortune & Tedick, 2003). The following section addresses these questions by reviewing the literature related to children’s academic and cognitive outcomes in FI programs.

While there is no evidence that FI programs are detrimental to children’s cognitive development and skills (Barik & Swain, 1975, 1976), many studies suggest that students in FI programs demonstrate greater cognitive abilities than those in regular English programs (Lazaruk, 2007; Swain, Lapkin, & Andrew, 1981). In some cases, this is attributed to the simple fact that being bilingual presents an overall cognitive advantage (Bialystok, 2002). In Bamford and Mizokawa’s (1991) study of Grade 2 students in a Spanish immersion program, it was found that immersion students demonstrated significantly higher skills in non-verbal problem solving as compared to their peers in an English program. These results suggest positive cognitive changes that occur from attending an immersion program. However, the authors point out that there are perhaps differences between parents who enroll their children in immersion programs and those who do not. If such differences exist, then it is possible that these differences influence the child’s increased cognitive abilities and not the school program. In this case, children in immersion programs would have greater cognitive abilities to begin with.
While many studies have investigated children’s experiences in school and kindergarten programs (as discussed in the previous section of this literature review), only a few have focused specifically on children’s experiences in FI programs. Pelletier (1998, 1999) conducted interviews with children in both FI and English kindergarten programs, and analyzed the resulting transcripts for content, detail, and complexity. Findings demonstrated that, contrary to the original hypothesis, children in FI programs produced longer and more complex scripts when discussing their day in kindergarten than children from English programs. This is evidence of the fact that children in FI programs do not experience difficulty in terms of understanding or interpreting the daily events that occur in kindergarten, even though they are in a second language environment.

Children’s academic outcomes in FI programs are now examined, beginning in the area of literacy. Both English and French literacy abilities are addressed, given that children who participate in FI programs are required to meet the same academic requirements in English as children in regular English programs once English language arts are introduced into the curriculum (Ontario Ministry of Education, 2006).

The question of the development of English literacy skills among early FI students has been the topic of study for many researchers. Overall, studies consistently demonstrate that learning to read in French will not hamper a child’s later learning of English literacy skills (Turnbull, Lapkin, & Hart, 2001). While FI students may experience an initial lag in English literacy skills in relation to their English program peers before English is introduced into the curriculum, this gap lessens once English instruction begins and is non-existent by the time students complete elementary school (Barik & Swain, 1975, 1976; Cummins, 1998).
In order to understand this trend, researchers have made efforts to extract specific aspects relating to literacy development and to analyze these through comparisons of FI and English program student progress, particularly in literacy. One example of such a study was conducted by Kendall, Lajeunesse, Chmilar, Shapson, and Shapson (1987) and examined the English reading skills of kindergarten, Grade 1 and Grade 2 FI students. Based on reading tasks involving letter and word recognition, reading common words, vowel and consonant elements, and oral reading performance, the study demonstrated that phonological awareness, a “specific group of metalinguistic skills by which children demonstrate sensitivity to the sound structure of words” (Comeau, Cormier, Grandmaison, & Lacroix, 1999, p.30), is a generic skill that, once learned, can be applied in any linguistic context. Given that phonological awareness has been shown to be one of the most important factors in literacy acquisition (Saiegh-Haddad & Geva, 2007; Stanovich, Cunningham, & Cramer, 1984), its transfer between alphabetic languages demonstrates that a person only needs to learn that specific ability once and can then apply it to reading in other languages.

Comeau, Cormier, Grandmaison, and Lacroix (1999) investigated how phonological processes are related to word decoding in FI students in Grades 1, 3, and 5. The authors broke phonological processes into three specific areas: phonological awareness, lexical access, and verbal working memory. The study revealed that phonological awareness was the best predictor of word decoding in French and in English. Furthermore, the authors found that cross-language transfer occurred, with phonological awareness in English and French predicting word decoding skills in both languages. A study by Tingley et al. (2004) compared the phonological awareness skills of kindergarten and Grade 1 English and FI students to determine whether program effects exist in this area. While all participants were tested in both English and French, the FI students
were given testing instructions in French and the English students were given instructions in English. It was found that there were no program effects on the students’ performance on the English phonological tasks; however, the English program students outperformed the FI students on the French syllable tasks. The authors attributed this to the fact that the French students already had assumptions about the French syllable style, which were not met during the testing, whereas the English students had no such assumptions. However, overall, all students performed better on the English tasks. The finding that there were no program effects on the English tasks demonstrates that children in FI are not at a disadvantage in terms of phonological development for English literacy.

Cormier and Kelson (2000) examined the role that phonological awareness plays in the spelling development of FI students in Grades 1, 2, and 3, specifically with regard to the spelling of plural irregular morphemes. Findings from the study indicated that Anglophone children in FI programs have greater difficulty with the spelling of irregular plural morphemes in French than in English. However, the study also revealed that phonological awareness in both French and English affected spelling and word decoding abilities in both languages. The authors highlighted the fact that “the same phonological mechanisms are at work when children begin to learn to read as when they learn to write in languages such as French and English that have alphabetic codes” (p. 288). Deacon, Wade-Woolley and Kirby (2007) measured FI students’ morphological awareness and its relation to both French and English literacy skills. That study demonstrated the role that both English and French morphological awareness, defined as a “conscious awareness of the morphemic structure of words and their ability to reflect on and manipulate that structure” (Carlisle, 1995, p.194, as cited in Deacon et al., 2007), play a role in the development of literacy in each language. Morphemes are the smallest units in words that can change the meaning of the
word. The authors found that early measures of English morphological awareness (Grade 1) greatly predicted English and French reading abilities, and that later French morphological skills (Grade 5) were strong predictors of reading in both languages. The authors inferred that as contributions of morphological awareness in a child’s first language decrease, the contributions in the second language increase. These studies in the areas of phonological and morphological awareness and the transfer between languages help to show why students in early FI classrooms are not at a disadvantage when it is time for them to learn to read in English. The skills that they have developed through learning to read in French are generic skills that apply to literacy in general, and the students may be able to transfer these skills into their English classrooms.

An additional area of concern for parents considering FI programs for their children is whether it will be possible to identify reading difficulties in English if the child is first learning to read in French (Jared, 2008). Since the language of literacy instruction in FI classrooms is French, parents worry that if their child has difficulties reading in English, these difficulties will not be identified until Grades 3 or 4, when formal English instruction begins. However, research has shown that since many of the processes underlying reading and writing are transferable between languages, and that there are usually no problems associated with learning to read initially in a second language. Therefore, it is likely that students who have difficulty reading in one language will have these difficulties in another, regardless of their native tongue (Genesee & Jared, 2008).

Similarly, both parents and teachers are often concerned with the question of whether a child who has learning or reading difficulties should be in an FI program at all. Research carried out in this area has shown that children who experience difficulties with reading in their second language will likely experience these same difficulties in their first language as well (Jared,
A study by Endler (2008) suggests that, since phonological processes are transferable between languages, an Anglophone student who is experiencing reading difficulties in French will be faced with these same problems in an English classroom. Thus, students with reading difficulties are not at a disadvantage by being in a FI program. In these cases, it is the root of the problem (difficulties with phonological processing) that needs to be addressed and not the language of instruction.

A further aspect of literacy development that has been examined in the context of early FI is whether there is a role for English in literacy instruction. In a case study comparing two methods of literacy instruction in Grade 1 FI classrooms, Ewert and Straw (2001) examined whether it was beneficial to have literacy taught in English. In general, FI implies that students will learn to read and write in French before they do so in English (Lazaruk, 2007); however, in one of the observed classrooms, the teacher felt it was more beneficial that students be taught to read in their first language prior to their second one. The study sought to determine the role language plays in literacy acquisition. The researchers found that, while the students in the classroom in which literacy was taught in French became proficient readers more quickly, this was less a result of the language of instruction and more a consequence of other teaching techniques and practices carried out by the classroom teacher. The authors explained that in the case of literacy acquisition, language of instruction is one small factor; it is the effectiveness of the teacher that is the greatest determinant of how well students learn to read, regardless of the language in which it is taught. Conclusions suggest that a structured, scaffolded model of instruction is the most effective for second language acquisition, with the teacher playing a more direct role and the students actively participating in lessons.
Genesee (1979) also investigated literacy development in immersion programs and whether it was more beneficial for children to acquire literacy skills in their first language before learning to read and write in a second language. This study found no evidence of benefits to introducing English reading earlier in FI programs and that children who were enrolled in early immersion programs did not experience later difficulties with English reading if they had first been taught to read in French. The study also demonstrated that children of both high and low reading abilities were able to transfer their literacy skills from one language to the other. This supports Cummins’ (2000) common underlying proficiency theory of language development, which proposes that skills or concepts learned in one language can be transferred into a second language. In a longitudinal study which followed children from kindergarten through Grade 3, Jared, Cormier, Levy, and Wade-Woolley (2011) investigated whether the skills required for learning to read in a particular language are specific to that language, or whether they are more general cognitive skills that would be useful for learning to read in any language. Participants in the study were tested annually on a variety of literacy measures. Results indicated that while some skills associated with reading, such as phonological awareness, grammar, and word identification, were not language-specific and predicted reading outcomes in Grade 3 in both languages, other aspects such as vocabulary were associated with particular languages (i.e., children’s English vocabulary scores in Grade 1 were only predictive of their English, and not French, reading scores in Grade 3).

In the study perhaps most similar to the current research, Cummins (1981a) examined the effects of three different kindergarten programs: half-day FI, half-day English, and full-day bilingual (with half of the day taught in French and the other half in English). The main purpose of this study was to determine whether exposure to French and/or English at the kindergarten
level is important for future success in FI programs and whether there is a benefit to providing a full-day bilingual kindergarten program. Cummins’ findings revealed that there did not appear to be a benefit to children in the full-day bilingual kindergarten program compared to those in the half-day FI program. However, when comparing students at the Grade 2 and 3 levels, the children who had participated in the full-day bilingual program in kindergarten demonstrated superior French skills to those who had completed the half-day English program. This study highlights the value of exposing children to French at the kindergarten level for later success in FI programs. It also minimizes the importance of exposing children to English in kindergarten immersion programs.

While literacy development has been a clear focus in FI research, fewer studies have examined children’s outcomes in mathematics compared to students in English programs, and those that have a focus on the years beyond kindergarten. One of the rare studies investigating this topic was conducted by Bournot-Trites and Reeder (2001), following the introduction of a more intensive model of FI in a Vancouver school board. Because the new model was phased in, it was possible to compare students who experienced the former FI program (50% instruction in French, not including mathematics) and those who experienced the new program (80% of instruction in French, including mathematics). Two cohorts of students, one who followed the 50% French model and one who followed the 80% French model, were tested at the end of Grade 6 (with the intensive immersion program beginning in Grade 4). One of the reasons for the study was parental concern that children learning math in French would not understand important mathematical concepts because they would be learning them in a second language. There was further concern that these children would be at a disadvantage upon entering high school, where mathematics were taught in English to all students. Therefore, students were tested...
on a standardized measure of mathematics administered in English in order to determine whether
learning mathematics in French would be detrimental to students’ abilities to succeed on a
mathematics task assigned in English. Findings indicated that students in the intensive French
group significantly outperformed students who studied math in English on mathematics
assessments administered in English, demonstrating that these students were not at a
disadvantage in either their understanding, or their ability to express their understanding, of
mathematical concepts. The authors suggested two possible explanations for these outcomes.
The first was that, since these students were learning mathematics in a second language, they
spent more time on and put more effort into their work, resulting in a deeper understanding of the
content. A second explanation was that, due to parental concern regarding language of
instruction, these students received more help and support at home, resulting in higher scores.

Other studies have examined FI students’ results on Ontario’s provincial EQAO
(Education, Quality, and Accountability Office) tests, which occur in Grades 3 and 6. These
detailed studies compared FI students’ results on both the mathematics and literacy components
of the tests. At the Grade 3 level, results indicated that children in French FI programs perform
as well as or slightly better than children in English programs on both mathematics and literacy
measures, with one exception: children enrolled in FI programs where English instruction had
not yet been introduced by Grade 3 had lower scores on the literacy measures, but still performed
equally well on the mathematics tests (Turnbull, Lapkin, & Hart, 2001). At the Grade 6 level, the
results were slightly different, with children in FI programs significantly outperforming children
in English programs on all aspects of the test, and most notably on the reading component
(Turnbull, Hart, & Lapkin, 2003). The authors suggested two possible explanations for this
growing difference in favour of FI students. The first was the extended-lag hypothesis, which
suggests that only when English is formally introduced into the curriculum do children in FI programs reach the threshold needed to perform as well as or better than their English-program peers. The second suggestion was that the cohorts being examined at the Grade 3 and Grade 6 levels were not identical, with children who struggle in FI withdrawing from the program at some point between Grade 3 and Grade 6 and therefore, not being included in the Grade 6 FI cohort at the time of testing.

2.4 Research questions and hypotheses

The literature reviewed in this chapter reveals many unresolved issues and unanswered questions about the implementation of FDK in FI contexts. This thesis aims to address some of these topics by investigating children’s outcomes and experiences in four kindergarten models: full-day French immersion kindergarten, full-day English kindergarten, half-day French immersion kindergarten, and half-day English kindergarten.

The current study has three guiding research questions.

**Research question #1:** What is the impact of full-day French immersion kindergarten on children’s academic outcomes?

The principal goal of this study is to investigate the impact of full-day FI kindergarten on children’s academic outcomes. Based on the literature on children’s outcomes in FDK, it is hypothesized that children in all FDK programs (FI and English) will score higher on measures of literacy and numeracy (academic domains highlighted in both the half-day and full-day kindergarten curricula) and that they will be able to provide a more comprehensive description of their kindergarten experience than those in half-day programs. For children from FI FDK, this hypothesis applies to both English and French literacy skills. The findings from this
part of the study will serve to inform the implementation of FDK in Ontario public schools offering FI programs at the kindergarten level.

**Research question #2:** What are children’s experiences in the various models of kindergarten programs?

The secondary aim of this study is to understand children’s experiences in the various kindergarten models through child, educator, and parent perspectives, in order to understand how teachers can best make use of a full day of learning in FI kindergarten. As described earlier in the literature review, there is currently no FI kindergarten curriculum. While it can be assumed that the responsibilities of a FI kindergarten teacher would mirror the expectations laid out in the English version of the kindergarten curriculum (for both half-day and full-day programs), there may be different academic priorities for FI educators.

Given that there is a separate curriculum for FI programs beginning at the Grade 1 level, it is hypothesized that specific considerations will also need to be made for FI kindergarten, and that simply using the English curriculum and delivering it in French will not result in an optimal program.

In the process of conducting the study, a third research question was developed based on the review of the literature as well as the researcher’s experiences in the schools.

**Research question #3:** To what extent do children choose to spontaneously use French in conversation?

As indicated above, this was not an original research question. However, throughout the process of the study, the researcher noted that while administering the research measures with the children in French immersion programs, there were instances where they would use French spontaneously. For example, when questions were asked in English, they would respond in
French, or when given the option of answering in French or in English, they would choose to answer in French. Therefore, a further research question was generated to determine whether this pattern of spontaneous French usage differed between children in full-day and half-day FI kindergarten programs.

It is hypothesized that, given the increased amount of time children in FI FDK programs spend immersed in French, they will be more likely to use French spontaneously than children in FI HDK programs.
Chapter 3: Methods

3.1 Research design

This study employs a mixed methods approach to examine the impact of four kindergarten models in two language contexts on children’s outcomes and experiences. Mixed methods were conducted for the purpose of complementarity (Greene, 2007); that is, to tap into different facets (i.e., academic outcomes, social experiences) of the kindergarten program. The collection of both quantitative and qualitative data allows for examination of the concrete impact the various kindergarten programs and language contexts have on children’s outcomes and experiences. The study is both longitudinal, as it follows the same children over time from the beginning of senior kindergarten until the beginning of Grade 1, and cross-sectional, as it allows for comparison between cohorts of children across four different kindergarten programs and two language contexts.

3.2 Context

This research was carried out in a Catholic school board in a small city near Toronto, Canada. The school board was eager to participate in the research, given that it was implementing full-day FI kindergarten for the first time at one of their schools. They identified three other schools, each offering a different model of kindergarten, that could also participate in the research and that were demographically comparable to the full-day FI school. It should be noted that the half-day kindergarten model in this school board was full day on alternating days. This means that children attend kindergarten for five full days every two weeks (the equivalent of attending for half a day every day). Therefore, when there is a reference to ‘half-day kindergarten (HDK)’ throughout this study, this signifies a full-day on alternating days program, as compared to ‘full-day kindergarten (FDK),’ which refers to full days every day.
There are two important school differences to note. The first relates only to FDK schools. While the full-day FI school was implementing FDK for the first time during the year the study took place, the full-day English school had been involved in the first phase of FDK implementation and was therefore implementing the program for the third year. This meant that children in full-day English received two years of FDK, junior kindergarten (JK) and senior kindergarten (SK), and children in full-day FI received only their SK year in FDK. The second school difference relates only to FI schools. While the full-day FI school began its FI program in SK, the half-day FI school began in JK. This means that students in half-day FI already had one year of French language instruction (in half-day FI kindergarten) at the beginning of the study, while those in full-day FI had none, and that by the end of the study, half-day FI students were in their third year of FI while students from the full-day program were in their second year.

3.3 Participants

3.3.1 Children

Child participants were recruited from four schools, each offering a different kindergarten model: full-day FI kindergarten \(N=23\), half-day FI kindergarten \(N=20\), full-day English kindergarten \(N=11\), and half-day English kindergarten \(N=16\), for a total of 70 child participants (30 boys and 40 girls). There were originally 73 children in the study; however, three changed schools between kindergarten and Grade 1, and therefore it was not possible to collect data from them at all three time points. With the exception of one participant (born in the United States), all children were born in Canada. Table 1 shows a breakdown by program of the gender and mean age of children at each time point.
Table 1

Breakdown of Gender and Mean Age of Child Participants by Program

<table>
<thead>
<tr>
<th></th>
<th>FI FDK</th>
<th>English FDK</th>
<th>FI HDK</th>
<th>English HDK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>10</td>
<td>6</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Girls</td>
<td>13</td>
<td>5</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Mean age in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>months at time 1</td>
<td>64.26</td>
<td>66.17</td>
<td>64.45</td>
<td>64.94</td>
</tr>
<tr>
<td>Mean age in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>months at time 2</td>
<td>70.52</td>
<td>72.53</td>
<td>70.05</td>
<td>70.78</td>
</tr>
<tr>
<td>Mean age in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>months at time 3</td>
<td>76.70</td>
<td>78.98</td>
<td>76.10</td>
<td>77.25</td>
</tr>
</tbody>
</table>

Parents of child participants in FI programs were asked to indicate whether there was anyone in their household who spoke French, besides the child in FI kindergarten. Figure 1 illustrates responses to this question by program. While the number or age of others who spoke French in the home differs between programs, Figure 1 illustrates that 74% of children in full-day FI kindergarten and 75% of children in half-day FI kindergarten had at least one person living in their household who spoke French.

![Figure 1](image)

*Figure 1. Others who speak French at home by program.*

3.3.2 Parents
Parents who gave consent for their child to participate in the study were asked to fill out questionnaires at the beginning and the end of the kindergarten year. Seventy-three parents (4 fathers and 69 mothers) completed the first round of questionnaires in the fall, and 36 parents completed the second round of questionnaires, in the spring. Table 2 shows a breakdown of parents who returned each round of questionnaires by program.

Table 2
Breakdown of Parents WhoReturned Questionnaires by Program

<table>
<thead>
<tr>
<th></th>
<th>FI FDK</th>
<th>English FDK</th>
<th>FI HDK</th>
<th>English HDK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2012</td>
<td>23</td>
<td>12</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>11</td>
<td>4</td>
<td>16</td>
<td>5</td>
</tr>
</tbody>
</table>

All of the parents indicated English to be the primary language spoken at home. All parents who completed the survey were born in Canada, with the exception of 4 (born in Zambia, United States, Poland, and Germany). As well, all parents who completed the questionnaire had a minimum of a high school education, and 66% had completed post-secondary education. Figures 2 and 3 show breakdowns of parent employment and education by program.

Figure 2. Parent employment status by program.
3.3.3 Educators

Participants included 12 educators from across the four kindergarten programs. All of the 12 participants completed questionnaires (9 teachers and 3 ECEs) and 7 agreed to complete the interview as well (6 teachers and 1 ECE). Table 3 shows a breakdown of participating educators by program and Figure 4 shows the participating educators’ years of experience in the field.

Table 3
Breakdown of Participating Educators by Program

<table>
<thead>
<tr>
<th></th>
<th>FI FDK</th>
<th>English FDK</th>
<th>FI HDK</th>
<th>English HDK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>Questionnaire</td>
<td>Interview</td>
<td>Questionnaire</td>
<td>Interview</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>ECE</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
3.4 Procedure

In early October 2012, consent letters (example for children in full-day French immersion kindergarten can be found in Appendix A) and parent questionnaires (Appendix B) were sent home to all senior kindergarten students at the four participating schools (approximately 220 students). A total of 73 consent forms and questionnaires were returned from the four schools, indicating a 33% response rate. Child participants represented 17 classes and 11 teachers or teacher and early childhood educator combinations, and these children and families became participants in the study.

In late October 2012, the first round of child data collection began. This involved the primary researcher (and in some instances, research assistants) going into the schools and working one-on-one with the child participants to administer all measures, with the exception of the French child interview. This generally took place in a room close to the kindergarten rooms, or another area in the school with which the children were familiar (i.e., the school library). Children in English kindergarten programs completed only the English measures, whereas children in FI programs were administered both the English and French measures. For the FI children, the measures were grouped by language (i.e., all English measures were administered together and all French measures administered together), and the order of languages (i.e., English
and French measures) switched for every participant, meaning that half of the participants from each program (full-day and half-day FI) completed the English measures first, and half completed the French measures first.

In May of 2013, the second round of both parent and child data collection occurred. Parents of participating children were sent a follow-up questionnaire (Appendix C) and of 73 families, 36 returned the questionnaire. Along with the questionnaire, parents were also sent reminder letters (Appendix D), reviewing the purpose of the study and the details of their child’s participation. All 73 child participants were administered the same measures following the same procedure.

At this time, all educators (teachers and early childhood educators) in the participating kindergarten classrooms were given consent letters (Appendix E) and questionnaires (Appendices F-G). If they were interested in participating in the study, they signed the consent forms and returned the questionnaires. The consent form indicated whether the educator was interested in participating only in the questionnaire portion of the study, or whether she was willing to complete both the survey and a short interview. Interviews were conducted in the schools at a mutually agreed-upon time in late spring 2013.

The final round of child data collection took place in the fall of 2013, when the participants were in Grade 1. As the children were in new classes and the Grade 1 teachers were unfamiliar with the study, the process began by having informal meetings with the teachers (dropping by the school, reviewing the project with the administration, and introducing it to the teachers). In preparation for this final phase of data collection, another reminder letter was sent to parents (Appendix H), and the child participant lists were given to the school office in order to ensure that all participants had returned to the school. Of the 73 child participants, only 3 were
no longer attending the same school. Therefore, 70 students were administered the measures at this time point. The measures were the same as those administered during the first two time points; however, a French child interview was added for French immersion students. Results, including means and standard deviations for each measure are presented in Chapter 5; however, it should be noted that there were no ceiling effects for any measures.

3.5 Measures

3.5.1 Child measures

English measures

*Peabody Picture Vocabulary Test, 3rd Edition (Dunn & Dunn, 1997)*

The PPVT-III is a standardized test used to assess receptive vocabulary. This test asks children to look at plates of four drawings and to point to the image that represents the word spoken by the researcher. The test is divided into sets of 12 words, which get progressively more difficult. The test continues until children make eight or more errors within one set. While there are two versions of the PPVT (version A and B), version A was used at each time point. This is due to the fact that version B was used for the adapted PPVT administered to the FI students (and discussed below). This procedure has been employed in other studies examining both English and French receptive vocabulary in FI contexts (e.g., Endler, 2008; Harper, 2010).

*Woodcock Johnson III Tests of Achievement (Woodcock, McGrew, & Mather, 2007).*

Two subtests of the WJ-III were used to assess different facets of children’s early reading abilities. The Letter-Word Identification subtest was used to assess children’s letter and sight word recognition. In this test, children are shown plates of letters and words and are asked to either identify particular letters or words, name letters, or read words. The Word Attack subtest was used to assess children’s word decoding abilities. In this test, children are shown plates of
nonsense words and are asked to read them. Together, these two subtests assess basic reading skills. Both subtests include sets of words that get progressively more difficult, and the tests continue until children make six consecutive errors at the end of a set. This measure is appropriate for children as young as two years old.

**Early Print Task (Pelletier & Lasenby, 2007)**

The Early Print Task assesses children’s early writing abilities. In this task, children are asked to write a short sentence including numbers and words. In this study, children were asked to write the sentence “Teacher has five little blue crayons.” Children are given markers, pencil crayons, and lead pencils to complete this task. Children are given a score for whether and how the colour, number, and meaning are represented. The complete coding protocol for the Early Print Task can be found in Appendix I. As some aspects of this measure can be interpreted subjectively, it was scored by two individuals and greater than 80% reliability was achieved. In cases where there were disagreements, the researchers met and discussed the measure and the reasoning behind their coding, and agreed upon a final score.

**Number Knowledge Test (Okomoto & Case, 1996)**

The Number Knowledge Test is a non-standardized measure that assesses children’s early numeracy abilities. For kindergarten children, the test begins by asking them to count to 10. In the remainder of the test, children are asked questions where they must count coloured chips, demonstrate knowledge of less and more, do simple additions and subtractions, and demonstrate understanding of bigger and smaller. Children are given a score of 1 if they answer a question correctly and 0 if they answer a question incorrectly. The test items are leveled with increasing difficulty, and administration of the test ends when children have made five consecutive errors. Children’s correct answers are added together for a total raw score.
Another factor that was examined through the Number Knowledge Test was the language (French or English) FI students used or favoured when working through some of the questions. At the kindergarten level, the test begins by asking children to count to 10. While the test is administered in English, FI students were asked to do so in both English and French. Their ability to do so in both languages, as well as the language chosen first, was noted. Additionally, if French was used during the test (to count, to give answers, to think aloud) this was also indicated. While language choice was not originally a factor of interest on the Number Knowledge Test, during administration, it became clear that some children chose to carry out some of the tasks in French instead of English, and their counting abilities in each language were not necessarily equal.

**Kindergarten Drawing Task (Rothschild, Simons, & Pelletier, 2013)**

The Kindergarten Drawing Task is an experimental measure in which children are asked to draw themselves doing something at school. They have the option of using crayons, markers, coloured pencils, or lead pencils. Once they have completed their drawing, they are asked to describe it and the researcher transcribes their narratives. French immersion students were given the option of describing their drawings in French or English and their language of choice was noted. The drawings and the accompanying narratives are coded for complexity (use of reference lines and integration of various elements of the drawing) and content (themes of play, academics, work, and active play). Children are given a score for each of these elements. The complete coding protocol for the Kindergarten Drawing Task can be found in Appendix J. As some aspects of this measure can be interpreted subjectively, it was scored by two individuals and greater than 85% reliability was achieved. In cases where there were disagreements, the researchers met and discussed the measure and the reasoning behind their coding, and agreed
upon a final score.

**Child Interview (Pelletier, 1998; 1999; 2012)**

The child interview is a non-standardized measure, in which children are asked questions about school and the researcher transcribes their answers. The questions are as follows:

a. *Tell me about your day, from the time you get to school in the morning until you leave school at the end of the day.*

b. *What is your favourite part of school?*

c. *What do your teachers do?*

d. *What is important about kindergarten?*

e. *(For students in French immersion) Do you like going to school in French? Why?*

For question 1, the children’s interview transcripts are referred to as scripts, as children are asked to describe a sequence of events in a particular context (Pelletier, 1998). The scripts are coded both for word count, and for whether children discuss play and academics. The rest of the questions are coded according to themes represented in the children’s answers. The complete coding protocol for the Child Interview can be found in Appendix K. As some aspects of this measure can be interpreted subjectively, it was scored by two individuals and greater than 85% reliability was achieved. In cases where there were disagreements, the researchers met and discussed the measure and the reasoning behind their coding, and agreed upon a final score.

**French measures**

Instructions as well as any other conversation related to the administration of the French measures were given in English, to ensure that there was no misunderstanding about the task associated with language.
Adapted Peabody Picture Vocabulary Test (Endler, 2008)

This adapted version of the PPVT-III was developed specifically for early FI students, and assesses their French receptive vocabulary. The test follows similar procedures to the English version and is based on the same materials; however, the target vocabulary words are those that early French immersion students would be more likely to understand. While there is a standardized French version of the PPVT, it is normed on children who speak French as a first language, and therefore too difficult for children in their first year of learning French. As the adapted version of the measure is not standardized, children are administered 60 items and given a score of 1 for correct answers and 0 for incorrect answers. They are then given a total score out of 60. A copy of the measure can be found in Appendix L.

Word Identification (Szucs, 2003)

This is an early reading task developed specifically for early FI students. Children are given sight words to read and are given a score of 1 for correct answers and 0 for incorrect answers. The test is divided into five sections, with eight words per section (for a total of 40 words). The testing stops when a child makes more than three errors in a section, and the child is given a score out of 40. A copy of the measure can be found in Appendix M.

Word Decoding (Geva, 1995)

This is a reading task designed specifically for early FI students. It is similar to the Word Attack subtest of the Woodcock-Johnson III, as it shows nonsense words and asks the children to read the words as they would sound in French. The test consists of 60 items and children are given a score of 1 for correct answers and 0 for incorrect answers. The testing stops when a child makes 7 consecutive errors, and the child is given a total score. A copy of the measure can be found in Appendix N.
*Early Print Task (Pelletier & Lasenby, 2007)*

A French version of The Early Print Task was administered to assess children’s French writing abilities. In this task, children are asked to write a short sentence including numbers and words in French. In this study, children were asked to write “Maman a cinq petites pommes rouges.” (Mother has five little red apples). The sentence was selected as it is one that early French immersion students would typically understand and it is similar in structure to the sentence participants were asked to write in English. As well, the number being represented is the same number as in the English sentence, ensuring that errors on this aspect of the measure are in fact due to linguistic and not counting abilities. Coding for the French Early Print Task follows the same procedures as the English version. Children are given a score for whether and how the colour, number, and meaning are represented. The complete coding protocol for the Early Print Task can be found in Appendix I.

*Child Interview (Adapted from Pelletier, 1998; 1999; 2013)*

The French child interview was administered only at the third time point, when the children were in Grade 1 and more capable of responding to questions in French. The questions were based on those in the English interview and the children’s answers were transcribed by the interviewer. The questions were as follows:

a. *Qu’est-ce que tu fais à l’école?* (What do you do at school?)

b. *Qu’est-ce que tu aimes faire à l’école?* (What do you like to do at school?)

c. *Aimes-tu parler en français?* (Do you like speaking in French?)

If the children were unable to answer completely in French, they were still encouraged to respond to the question to the best of their abilities, even if this meant speaking in English. As with the English child interview, transcripts are coded according to themes represented in the
children’s answers. Children are also given a separate score for each question for their ability to answer in French. The complete coding protocol for the French Child Interview can be found in Appendix O.

3.5.2 Parent measures

Parent Questionnaires

The parent questionnaires were designed to obtain demographic information about the children participating in the study, as well as to gauge parent perspectives of their children’s experiences in the kindergarten program. Parents completed the questionnaires at two time points: in the fall and the spring of the kindergarten year. There were two versions of each questionnaire; one for parents with children in French immersion kindergarten and one for parents of children in English kindergarten. Questions included information about home language and parents’ education level and employment status. They also asked parents to describe their child’s experiences in kindergarten. The questionnaires for parents with children in FI kindergarten targeted experiences specifically related to the FI program. Most of the questions provided a list of answers and asked parents to check off the most appropriate answer. However, all questions left space for parents to elaborate upon their answers. The fall and spring versions of the questionnaires for parents of children in French immersion can be found in Appendices B and C. The versions for parents of children in English kindergarten were the same, with the exception of the questions relating specifically to French immersion.

The questionnaires consisted of both open- and closed-ended questions. Closed-ended questions were coded quantitatively, in order to examine the frequencies of particular answers. Open-ended questions as well as any elaborations to the closed-ended questions, were first coded qualitatively with recurring themes highlighted. Following this, themes for each question that
occurred in more than three instances were assigned a code and were coded quantitatively, once again in order to examine the frequencies of particular answers. The complete coding protocol for the quantitative component of the parent questionnaires can be found in Appendix P. As well, an example of the qualitative coding, from the parents of children in full-day French immersion kindergarten, can be found in Appendix Q.

3.5.3 Educator measures

Educator Questionnaires

The educator questionnaire was designed to obtain demographic information about the educators (i.e., years of experience, age range, education level), as well as to obtain educator perspectives on full-day kindergarten (both English and FI programs). Four versions of the questionnaire were administered to educators in the four kindergarten programs. A copy of each of the questionnaires administered to educators in the full-day and the half-day FI programs can be found in Appendices F and G. The versions for the educators in the English programs were the same; however, they did not include the section on French immersion. For the purpose of this thesis, the demographic information is of importance in order to gain insight into the educators’ years of experience in the field as well as the kindergarten program model they were delivering the year of the study.

Educator Interviews

The educator interviews were conducted to gain insight into the delivery of the various kindergarten models. A total of seven educators agreed to participate in the interview component of the research, with at least one educator from each of the four kindergarten models. The interviews were semi-structured and asked educators to run through their daily and weekly plans, and to discuss their teaching strategies, learning goals for their students, and their views on how
their students experience the kindergarten program. The interview questions can be found in Appendix R. The interviews lasted between 15-60 minutes and were audio-recorded and transcribed. Transcripts were reviewed and recurring themes were highlighted. The information obtained from the interviews sets the context for the rest of the study by providing details of how the kindergarten program is delivered in the four program models. Findings from the educator interviews are presented in the following chapter.

3.6 Analyses

All analyses were conducted using raw scores, even for the PPVT and the Woodcock-Johnson reading measures, where standardized scores were available. This is because the equivalent French literacy measures yield only raw scores and therefore, using raw scores for the English measures allowed for consistency when doing analyses for literacy outcomes in each language. For all English literacy measures, as well as the Number Knowledge Test and the interview scripts, comparisons were first made between children in all four programs by performing mixed analyses of variance (ANOVAs). These analyses measured both change over time (beginning of kindergarten, end of kindergarten, and beginning of Grade 1) within-programs, as well as differences in mean scores between programs at each time point. For the French literacy measures, mixed ANOVAs were again conducted; however, comparisons were made only between children in full-day and half-day FI programs.

When conducting the ANOVAs, three factors were considered as needing to be controlled: children’s age, parent education level, and initial differences. Given that there were no significant differences in children’s mean ages between programs at any of the time points, age was not controlled in any of the analyses. However, when examining parent education level, significant differences were found between parents of children in English and FI programs.
Therefore, all analyses were first conducted using both parent education and kindergarten program as between-subject factors. These analyses revealed no significant interactions between parent education and child outcomes, and parent education was therefore removed from the analyses to allow for more power. Finally, given that there were no significant differences found on any of the measures at Time 1, initial differences were not controlled in the rest of the analyses.

As the sphericity assumption is often violated in mixed ANOVAs, multivariate statistics are reported (Green & Salkind, 2011; Pallant, 2016). Wilks’ $\lambda$ is the reported statistic for within-factor and interaction effects, except in instances where Box’s test of Equality of Covariance Matrices is significant. In those cases, a more conservative Pillai’s trace is reported. Levene’s test was used to check the assumption of homogeneity of variances, and unless otherwise reported, this assumption was met. For all ANOVAs, partial eta squared ($\eta^2$) is the reported effect size, where .01, .06, and .14 are considered to be small, moderate, and large effect sizes respectively (Green & Salkind, 2011).

For the qualitative indicators, the focus was on reporting overall findings, and less about making group and program comparisons. For these measures, frequencies and percentages of responses were coded into different categories of particular indicators, along with chi-square tests and contingency tables.
Chapter 4: Educator interviews

To set the context for the study and to gain an understanding of the four kindergarten programs being implemented, interviews were conducted with seven educators. The questions that guided these semi-structured interviews are found in Appendix L. Generally the questions focused on two areas: 1) program implementation and delivery, and 2) children’s experiences and educators’ learning goals for students. Educators implementing the full-day model (in both FI and English) were also asked to describe their thoughts about and experiences with the program. The information in this chapter is not meant to be linked to specific educators, but rather to the kindergarten program they were implementing. These interviews serve to set the context for the study as they shed light on children’s day-to-day experiences in their kindergarten classroom. Interview content should not be interpreted as results, but rather as contextual information that can be used to inform the academic and social outcomes discussed in the following chapter.

4.1 Program implementation and delivery

In this section, educators’ responses to questions related to program implementation and delivery are reviewed according to kindergarten model.

Full-day French immersion kindergarten

Interviews were conducted with two teachers and one early childhood educator from full-day French immersion kindergarten programs; therefore both classrooms are represented. In both cases, the educators commented on the fact that, while they initially tried to plan in advance, they were never sure where a certain topic “would go” or how long it would last, and therefore, it was very difficult to do any long-range planning. In both classrooms, the days had some structure in terms of the order of certain activities and the type of activities offered at different times of day.
(i.e., free play centers, structured centers, snack, outdoor play, lunch) but the content of these activities varied.

Both classrooms began the day with a morning routine, including a morning message. In one classroom, the teacher used a puppet called “Dimoitou” (tell me everything) to communicate the morning message to the students. The students came in every morning to see what Dimoitou had to tell them. In some cases, they needed to find things around the classroom for him. Occasionally, he played tricks on them and hid things, and at other times he shared exciting news with them. The teacher in this classroom also used aspects of the Accelerative Integrated Method (AIM) approach to teach new French vocabulary through gestures.

In the second classroom, the educators also carried out a morning message. The teacher commented that at the beginning of the year, she knew the students would not be able to read the message, but it was “more about getting certain words into their vocabulary.” As the year progressed, the message was similar, but she changed it minimally to see whether they noticed and understood new words. By January and February, she made jokes by changing “Bonjour les filles et les garçons” (Hello girls and boys) to “Bonjour les chats et les chiens” (Hello cats and dogs) and other humorous replacements. Children began recognizing certain words and when the usual words were replaced, they were eager to figure out the new message.

All three educators mentioned the challenge of balancing French language instruction with delivering an inquiry-based, child-centered program. Both teachers reported that at the beginning, the focus was on direct instruction of French vocabulary (using songs, Smartboard games, and stories), with smaller inquiry activities on the side, because students did not yet have the vocabulary to be able to ask the big questions in French. However, by the middle of the year,
students were comfortable enough in French and had enough vocabulary to ask deeper questions and therefore, real inquiry projects were undertaken.

As previously indicated, both classrooms began the day with a morning message and routine. From there, both entered into “centre” periods, where children participated in an activity of their choosing. Often during this time, math and literacy activities were set out, and the educators ensured that students experienced those activities at some point during the week. One teacher mentioned that her students asked for “work” and preferred to go to the “academic” centers first. During this time, educators often worked one-on-one with students, or in smaller groups, supporting children in areas of difficulty or working on specific skills (i.e., phonemic awareness, counting, etc.). Children then played outside for 30 minutes, came inside and ate lunch. After lunch, a religion lesson (all participating schools were in a Catholic school board) was followed by a free play period. One of the teachers mentioned that during this time, many of her students often asked for work – they preferred to do activities such as writing, counting, or reading rather than playing at the house centre, science centre, block centre, or art table. All educators observed that children were less focused during the afternoon periods than they were in the morning. At the end of the day, children played outside for 20 minutes before going home.

One teacher mentioned that she consulted the kindergarten curriculum document regularly, in order to ensure she was addressing all required areas. However, she did not plan specifically when she would cover each one, as she often found that opportunities arose through the children’s play. For example, she did not deliberately plan lessons on patterning or measurement, but found children exploring these concepts during their play. She was therefore able to join in their activity, talk about patterning and measuring, and teach the French vocabulary related to these subjects. The teacher found that she was covering much more than
she realized (or planned to) in a week by utilizing the opportunities that arose during children’s play. While the classrooms did have a daily schedule, all three educators commented that the full-day program allowed for more flexibility, so that if students were very engaged in a particular learning activity, it could be prolonged.

**Full-day English kindergarten**

Interviews were conducted with one teacher from full-day English kindergarten programs; therefore only one classroom is represented. However, the teacher reported that the three kindergarten classrooms did many activities together and generally followed the same routine. In the full-day English program, all three classes began the day outside in their “outdoor classroom.” Activities were set up for the children, such as sand and water tables, tricycles, cards, a sensory bin, watercolours, wagons, science equipment, books and mats, as well as the outdoor play structure. As all three classes were together at this point, there were 75 children and six educators who remained outside together for 45 minutes. Once inside, the children participated in a 20-minute lesson in phonemic awareness as a whole group, and then were split into two groups (junior and senior kindergarten); half participated in further phonemic awareness activities, while the other half participated in fine motor games. Children then ate snack followed by an open play time block, which was generally free choice; however, there were specific teacher-directed centers that every child was required to complete at some point during the week (i.e., math games or reading and writing activities). There was also a craft table, sometimes directed by an educator, where children were required to follow certain steps in order to create a specific result, and sometimes a free art project which they could create themselves. During this time, children had access to the sensory table, the paint easels, and many other activities.
After the free play, children participated in circle time, where they usually discussed religion. After circle time, they played outside for 30 minutes then returned to the classroom to eat lunch. After lunch, all three kindergarten classes met in one of the classrooms for 20 minutes of dance, songs, games, or other physical activity. Following this, children took gym class. They were split up for gym activities, with the JK students taking part in activities first with the ECE and the SK students staying behind for a literacy lesson with the teacher; the groups then switched activities. Following this there was another play block (this one with more free choice than in the morning), snack, and another circle time in which they discussed their day, reviewed what they did and what they learned. At the end of the day, children were given quiet time for puzzles or reading before leaving for home. There were scheduled days for library or music, but otherwise, the schedule remained fairly consistent.

Half-day French immersion kindergarten

Interviews were conducted with two teachers from half-day French immersion kindergarten programs; therefore two of three classrooms were represented. It should be noted once again that the half-day model in this study was full days on alternating days; therefore educators in these programs were with their students two or three times per week for full days.

Both teachers described a structured, routine-based program. Every morning, students participated in a morning routine, which included taking attendance, discussing the day, the weather, the date, and counting. Often, during this time period some direct instruction of French vocabulary occurred. One teacher played a game with her students called “Trouve Madame…” (find Madame…), a game in which she gave children hints or characteristics of objects that they needed to find around the classroom (i.e., triangles, the letter A, things that began with a certain sound, etc.). This teacher reported that the children’s French abilities were limited at the
beginning of the year, but that they were able to have more complex conversations in French by the middle of the year. Both teachers indicated that the morning routine generally led into the following activity. In both cases, it was usually math or literacy either on the Smartboard or at tables, and all children were completing the same activity at the same time. In one classroom, this continued until snack time, whereas in the other, the class visited the library twice per week and on other days, they carried out handwriting activities (tracing for JK students and tracing and writing for SK students).

Following math and literacy, there were morning announcements, prayers, and snack. After snack, both classes moved into center time, where children generally had free choice of activity; however, teachers encouraged certain students to complete certain activities. Teachers used this time to work one-on-one or with small groups of students in guided reading, writing, or other assessments. After center time, both teachers had their free periods for planning and the children took part in gym or dance class with a rotary teacher, followed by lunch. An instructional period took place after lunch, and both teachers generally taught math or occasionally religion during this time. After this period, children went outside for 30 minutes. When the children returned from outside, one class had a flexible “catch-up” period in the library and the other class took part in science or social sciences. The teacher explained that these types of activities were usually hands-on and application-based. Children then had their second snack followed by 20 minutes of dancing or other physical activity, and their last recess. They left school directly after recess. One teacher pointed out that overall, there were four instructional periods during the day, one of which was designated for free play. Generally, both teachers planned the more academic subjects to be taught earlier in the day, as children were more focused. Further, both teachers commented that by Friday, the children were tired as this was
their third day at school (while some weeks they only had two days of school due to the alternating full-day schedule), so sometimes the activities were lower-key on Fridays. One teacher also commented that, while the routine did change occasionally, she tried to maintain consistency as much as possible.

Both teachers used the Smartboard regularly in their classrooms, both for day-to-day procedures such as taking attendance, and for learning activities (structured and unstructured). Both teachers also mentioned the role of inquiry and exploration in science and sometimes in math, and the role of direct instruction when teaching French vocabulary. One teacher explained the importance of rote learning for children at this age, and the need for children to memorize the alphabet and new vocabulary.

**Half-day English kindergarten**

Interviews were conducted with one teacher from half-day English kindergarten programs; therefore only one classroom was represented. As this teacher only saw her students every other day, she planned her schedule in two-week blocks, because she saw the children five times in two weeks. Within each of these two-week blocks, the teacher addressed certain areas of the curriculum a certain number of times. For example, she ensured that Jolly Phonics and math instruction were taught at least four times in a two-week block, writing twice, and library, computers, and an organized craft once. This teacher described herself as more traditional, explaining that she liked to have a morning calendar every day, discussed the date, the weather, and usually a bible story. These elements were then used to practice skills such as counting and graphing, and to rehearse different virtues. The morning generally consisted of whole group instruction.
In the afternoon, the children in this half-day English program experienced an open-center period, where they chose their activity. There was a less-structured “academic” center (with a math or a literacy activity), as well as blocks, painting, computers, the home center, sandbox, water table, and two craft activities available for children. During this time, groups of children were taken for guided reading circles, or other small group or one-on-one instruction.

The children had two snacks and one lunch period per day, as well as one 40-minute outdoor play period. The teacher noted that there was usually an underlying theme related to the season or to the children’s interests. The themes were not static, they developed over the course of the year.

4.2 Student learning experiences

This section discusses the educators’ goals for their students and their perspectives of children’s learning experiences in the various kindergarten models.

Full-day French immersion kindergarten

When discussing student learning experiences in the program, all three educators from full-day French immersion kindergarten commented on how far children have come over the course of the year in their French language abilities. Both teachers addressed the fact that being in a French school environment all day every day, meant that children were learning in a different way than the previous year (when they were in school all day, every other day). Their environment was now more consistent and they were more comfortable in and familiar with their classroom. None of the educators commented on student experiences in areas besides French (i.e., literacy, mathematics, etc.).

When considering goals for their students, all three educators listed the development of French language abilities as a priority. While the goal was not necessarily fluency in French,
educators wanted their students to be able to understand basic French questions and directions, and to be able to have short conversations. One of the teachers mentioned that, while it was not a goal from the beginning of the year, once she saw how quickly her students were progressing with learning sounds, letters, and sight words, her goal was to have readers by the end of the year. This teacher acknowledged that the goals she set at the beginning of the year in the area of literacy had to be adjusted as she saw how quickly her students were improving. She explained that even weaker students were reading at a low Grade 1 level. While there were obviously curriculum goals that needed to be achieved, she found that she covered them throughout her program without specifically planning for them. In reviewing the curriculum document each week, she realized that she had covered many aspects of the program through the play-based learning that was happening in her classroom.

Full-day English kindergarten

The educator from the full-day English kindergarten program explained that the rapid learning of students was a result of the reinforcement of new skills or concepts that occurred every day. She recalled that in the half-day program, it often felt as though educators were “dumping knowledge” on the students because there was so little time for meaningful, discovery-based learning. The teacher reported that the SK students were starting to read, to pick up books and to put words and sentences together. She noted that, while the students’ benchmark reading scores were not changing from what they were in the half-day kindergarten program, the difference was in the children’s abilities to apply their literacy skills. Children were now demonstrating the strategies to select and read books they had not read before, so while it may not have shown up in formal testing, the content the children were able to decipher and understand was at a much higher level. The teacher concluded by explaining that it was the
foundation skills and problem solving abilities, that were more difficult to measure, which were rapidly growing and developing in the full-day kindergarten program.

**Half-day French immersion kindergarten**

One of the educators in the half-day French immersion program noted the tension that existed at all levels of French immersion, between teaching the language and teaching the content. This teacher’s goal with relation to French was for students to acquire basic vocabulary and to have a positive experience with the language. She aimed to have her students understand simple (ideally two-step) directions in French without needing a translation into English, and to be able to respond to basic questions and contribute to some discussions using learned vocabulary. While the students did not use French as much as she would have liked, the teacher noted that occasionally, they surprised her with the level of vocabulary they knew and used in their conversations.

With regard to other curricular areas, this teacher acknowledged that her students were behind students who attended an English kindergarten program because they were not at school in their first language. However, the teacher did aim for her students to attain the fundamental aspects of the curriculum, so that they were more or less on par with their English counterparts. She also discussed the benefits of having JK and SK students together in the same classroom, as it allowed the SK students to act as mentors and to share their knowledge and understanding from the year before, which validated their learning.

The second educator from half-day French immersion kindergarten explained that her goals for students were varied and individual. Ultimately, her goal was to push children to reach their full potential, and this developed differently for every student. Another overarching goal of this teacher was to try to blur the lines between playing, working, and learning. She felt
successful if children thought that they were playing all day but demonstrated signs of growth in their French language abilities as well their knowledge and skills in the other curriculum areas.

**Half-day English kindergarten**

The educator from the half-day English kindergarten program described her main goal as ensuring she covered everything in the kindergarten curriculum over the course of the children’s two years in the program. She reported that for some children, the half-time program was good because they went to school but still had “off-days.” However, she noted that some children, particularly those in SK, had the energy to be at school more often and would likely be capable of doing a lot more if they were. The teacher added that many children were in daycare on their “off-days” and that, according to their parents, had expressed that they would rather be in kindergarten. The teacher also raised the point that when there were holidays that fell on Mondays, the Monday/Wednesday kindergarten group would sometimes have an entire week between school days. When they returned to school, it was like starting at the beginning as they had forgotten the school routines. This teacher also noted the benefits of having a combination of JK and SK students in the classroom, as the SK students became the school “experts” and were able to help the JK students, particularly at the beginning of the year.

**4.3 Educator perspectives on full-day kindergarten**

Following a description of the kindergarten program and the students’ experiences in these programs, teachers delivering full-day kindergarten programs were asked to comment and reflect upon the full-day model. The two teachers from the full-day French immersion kindergarten program discussed the original struggle to deliver a play-based program in a second language. At the beginning of the year, it was difficult given the children did not have the necessary language skills to play “in French.” However, all three educators from this program
commented on the readiness of these children for Grade 1; indeed they reported that Grade 1 teachers should be both excited and “warned” about these students. The educators explained that the traditional Grade 1 curriculum might be too basic for the children coming into it from the new full-day kindergarten program.

One of the French immersion teachers observed that there was more time in the full-day program to just “let children be.” The program was not as data-driven and there was much more time to acquire the required skills without that being done in a contrived manner. The teacher specifically noted the time available for literacy. She explained that in the half-day model, time had to be used carefully in order to ensure children gained the necessary literacy skills to be able to move to Grade 1. With the additional time the full-day program offered, she trusted that it would happen at the children’s rhythm.

The full-day English kindergarten teacher noted that while the curriculum document of the full-day model promoted free and child-directed activity, parents wanted more structured and organized activities so that they could better understand their children’s learning and progress. This teacher indicated that coming to school all day, every day allowed the kindergarten students to adapt to the routine more quickly than in a half-time program. In particular, the teacher noted that students in the half-time program often experienced stress in the mornings when separating from their parents, and this could last until the middle of November, but with the full-time program, “the crying was finished by the end of September.”

4.4 Summary of contextual factors

The results from the educator interviews demonstrate the similarities and differences among the four kindergarten models examined in this study, both in program implementation and delivery, and in student experiences in the program. This is especially important to consider in
light of the lack of a curriculum for French immersion kindergarten (either full-day or half-day). Therefore it is primarily through the educators’ perspectives that we gain an understanding of what is occurring in these classrooms on a day-to-day basis. The academic and social outcomes of each program, discussed in the following two chapters, are interpreted and understood within the context of these classrooms.
Chapter 5: Results

To allow for a comprehensive understanding of child outcomes in the different kindergarten models, a variety of analyses was carried out. Table 4 presents an overview of the research questions, measures, and analyses conducted. The results are presented in two sections. Results from the child measures are reviewed first, followed by results from the parent questionnaires.

Table 4
*Summary of Research Questions, Measures, and Analyses*

<table>
<thead>
<tr>
<th>Research question</th>
<th>Measures</th>
<th>Language</th>
<th>Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the impact of full-day French immersion kindergarten on children’s academic outcomes?</td>
<td>PPVT, WJ letter-word identification, WJ word attack, early print task, number knowledge test, drawing task</td>
<td>English</td>
<td>Mixed ANOVA</td>
</tr>
<tr>
<td></td>
<td>Adapted PPVT, adapted word identification, adapted word attack, adapted early print task</td>
<td>French</td>
<td>Mixed ANOVA</td>
</tr>
<tr>
<td>What are children’s experiences in the various models of kindergarten programs?</td>
<td>Drawing task, child interviews, parent questionnaires</td>
<td>English</td>
<td>Frequencies of themes, cross-tabulations, chi-square</td>
</tr>
<tr>
<td></td>
<td>Number knowledge test, drawing task, child interviews</td>
<td>English</td>
<td>Frequencies, cross-tabulations, chi-square</td>
</tr>
</tbody>
</table>

5.1 Child outcomes

For the child outcomes, results are separated into literacy and non-literacy outcomes. The literacy results are reviewed first, followed by the math, drawing, and interviews. All children
were administered measures at three time points: time 1 (fall of kindergarten), time 2 (spring of kindergarten), and time 3 (fall of Grade 1).

5.1.1 Literacy outcomes

In this section, the following literacy skills are presented, first in English and then in French: receptive vocabulary (as measured by the PPVT-III and an adapted French version), word identification and word decoding (as measured by the Woodcock-Johnson III and adapted French versions), and writing (as measured by the Early Print Task). All children were administered all English measures. Additionally, all children in FI programs were administered all French measures.

Table 5 presents correlations between each literacy measure at the three time points. Both English and French literacy measures are included in the table, in order to examine correlations within and across languages. There are several significant correlations; for example, results from the English PPVT at time 1 were significantly correlated with both the PPVT and Early Print Task outcomes in both languages at all three time points. All significant correlations between outcomes on the literacy measures were positive.
**Table 5**

**Correlation Coefficients Between Literacy Measures in English and French.**

| Measure          | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    | 24    |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| PPVT Eng T1      | -     | -     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| PPVT Fr T1       | .394**| -     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Word ID Eng T1   | .254* | .411**| -     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Word             | .121  | .277  | .768**| -     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Print Task Eng T1| .246**| .250  | .613**| .527**| .348* | .300  | .805**| -     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Print Task Fr T1 | .799**| .162  | .175  | .089  | .049  | .019  | .252* | .278 - |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| PPVT Fr T2       | .370* | .365* | .313* | .241  | .143  | .010  | .344**| .285  | .377*| -     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Word ID Eng T2   | .270* | .306* | .904**| .706**| .732**| .576**| .516**| .547**| .154 | .265 - |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Word Decode Eng T2| .081  | .124  | .743**| .707**| .687**| .599**| .456**| .425**| .028 | .047  | .841**| -     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Word ID Fr T2    | .135  | .258  | .851**| .810**| .835**| .490**| .399**| .409**| .015 | .214  | .839**| .773**| -     |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Word Decode Fr T2| .161  | .355**| .769**| .809**| .841**| .311**| .379* | .034  | .306* | .678**| .539**| .851**| -     |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Print Task Eng T2| .294* | .310* | .391**| .223  | .123  | .080  | .538**| .570**| .245*| .472**| .450**| .320**| .242  | .197  | -     |       |       |       |       |       |       |       |       |       |       |       |
| Print Task Fr T2 | .341* | .169  | .362* | .230  | .195  | .147  | .602**| .585**| .208 | .357**| .354**| .262  | .305**| .240  | .711**| -     |       |       |       |       |       |       |       |       |       |       |       |
| PPVT Eng T3      | .569**| .286  | .329**| .335**| .286  | .144  | .315**| .379**| .627**| .441**| .345**| .177  | .225  | .334**| .259**| .228  | -     |       |       |       |       |       |       |       |       |       |
| PPVT Fr T3       | .325* | .547**| .287  | .229  | .120  | .009  | .202  | .162  | .252  | .662**| .168  | .016  | .171  | .304**| .231  | .218  | .245  | -     |       |       |       |       |       |       |       |       |       |
| Word ID Eng T3   | .158  | .373* | .790**| .642**| .735**| .525**| .519**| .586**| .111 | .259  | .865**| .741**| .870**| .704**| .450**| .401**| .300*| .209  | -     |       |       |       |       |       |       |       |       |
| Word Decode Eng T3| -.015 | .182  | .666**| .589**| .761**| .647**| .452**| .441**| -.021| .084  | .735**| .746**| .861**| .604**| .366**| .320**| .183 | .062  | .827**| -     |       |       |       |       |       |       |       |
| Word ID Fr T3    | .228  | .386* | .749**| .565**| .587**| .414**| .427**| .438**| .093 | .113  | .782**| .719**| .735**| .580**| .340**| .325**| .178 | .161  | .838**| .802**| -     |       |       |       |       |       |       |
| Word Decode Fr T3| -.054 | .172  | .428**| .396**| .249  | .272  | .323  | .298  | .014 | .050  | .538**| .669**| .393**| .262  | .361**| .280  | -.002| .086  | .528**| .617**| .640**| -     |       |       |       |       |       |
| Print Task Eng T3| .293* | .199  | .522**| .360**| .143  | .096  | .556**| .518**| .225 | .253  | .485**| .325**| .296  | .201  | .499**| .404**| .280*| .015  | .510**| .379**| .444**| .299  | -     |       |       |       |       |
| Print Task Fr T3 | .374* | .243  | .222  | .119  | .145  | .163  | .263  | .206  | .256  | .063  | .145  | .061  | .078  | .109  | .168  | .149  | .385*| .014  | .165  | -.007 | .150  | .130  | .520**| -     |       |       |       |       |

**. Correlation is significant at the 0.01 level (2-tailed)**

*. Correlation is significant at the 0.05 level (2-tailed)**
English literacy outcomes

Mean raw scores and standard deviations for the English literacy outcomes at all three time points can be found in Table 6.

Table 6  
Means (and Standard Deviations) for English Literacy at Times 1, 2, and 3

<table>
<thead>
<tr>
<th></th>
<th>PPVT Time 1</th>
<th>PPVT Time 2</th>
<th>PPVT Time 3</th>
<th>Word ID Time 1</th>
<th>Word ID Time 2</th>
<th>Word ID Time 3</th>
<th>Word Decoding Time 1</th>
<th>Word Decoding Time 2</th>
<th>Word Decoding Time 3</th>
<th>Print Time 1</th>
<th>Print Time 2</th>
<th>Print Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>FI</td>
<td>88.87</td>
<td>94.87</td>
<td>100.04</td>
<td>15.96</td>
<td>18.52</td>
<td>20.83</td>
<td>3.26</td>
<td>4.09</td>
<td>4.65</td>
<td>7.30</td>
<td>8.61</td>
<td>9.35</td>
</tr>
<tr>
<td>FDK</td>
<td>(15.46)</td>
<td>(13.82)</td>
<td>(13.13)</td>
<td>(6.39)</td>
<td>(7.10)</td>
<td>(7.41)</td>
<td>(1.42)</td>
<td>(2.28)</td>
<td>(3.55)</td>
<td>(1.94)</td>
<td>(1.59)</td>
<td>(1.33)</td>
</tr>
<tr>
<td>Eng</td>
<td>87.83</td>
<td>95.33</td>
<td>103.73</td>
<td>15.25</td>
<td>21.67</td>
<td>31.18</td>
<td>3.33</td>
<td>4.50</td>
<td>9.09</td>
<td>7.42</td>
<td>8.83</td>
<td>10.00</td>
</tr>
<tr>
<td>FDK</td>
<td>(15.98)</td>
<td>(11.11)</td>
<td>(12.64)</td>
<td>(2.05)</td>
<td>(4.12)</td>
<td>(4.98)</td>
<td>(1.21)</td>
<td>(2.02)</td>
<td>(4.95)</td>
<td>(2.20)</td>
<td>(1.95)</td>
<td>(0.63)</td>
</tr>
<tr>
<td>FI</td>
<td>84.45</td>
<td>92.55</td>
<td>98.80</td>
<td>14.40</td>
<td>18.20</td>
<td>20.60</td>
<td>2.90</td>
<td>4.50</td>
<td>5.40</td>
<td>6.00</td>
<td>7.35</td>
<td>9.00</td>
</tr>
<tr>
<td>HDK</td>
<td>(17.53)</td>
<td>(15.34)</td>
<td>(14.10)</td>
<td>(7.64)</td>
<td>(8.73)</td>
<td>(8.39)</td>
<td>(1.85)</td>
<td>(3.65)</td>
<td>(4.52)</td>
<td>(2.77)</td>
<td>(2.85)</td>
<td>(1.89)</td>
</tr>
<tr>
<td>Eng</td>
<td>78.89</td>
<td>86.72</td>
<td>95.63</td>
<td>17.56</td>
<td>21.00</td>
<td>25.44</td>
<td>3.39</td>
<td>4.78</td>
<td>6.44</td>
<td>6.56</td>
<td>8.78</td>
<td>9.44</td>
</tr>
<tr>
<td>HDK</td>
<td>(9.71)</td>
<td>(9.41)</td>
<td>(7.87)</td>
<td>(6.19)</td>
<td>(8.08)</td>
<td>(7.92)</td>
<td>(1.41)</td>
<td>(3.16)</td>
<td>(3.35)</td>
<td>(3.16)</td>
<td>(1.20)</td>
<td>(1.09)</td>
</tr>
</tbody>
</table>

Mixed ANOVAs were conducted for each measure, to determine differences in participants’ scores over time.

*English receptive vocabulary*

With the exception of time 1, children in full-day English kindergarten had the highest scores on the PPVT, followed by children in full-day FI, half-day FI, and half-day English. At time 1, it was children in full-day FI kindergarten attaining the highest English vocabulary scores, with the rest of the order unchanged. Results of the ANOVA revealed a significant effect of time on the PPVT scores, Wilks’ λ = .45, F(2,65) = 39.73, p < .001, η² = .55, indicating a large effect size; however, there were no program effects or interaction effects between time and program.

*English reading: Word identification (WordID)*

With the exception of time 1, children in full-day English kindergarten had the highest scores on WordID, followed by children in half-day English, full-day FI, and half-day FI. At time 1, it was children in half-day English kindergarten who had the highest WI scores, followed by full-day FI, full-day English, and half-day FI.
Figure 5 demonstrates the growth in WI abilities of all four groups of children from the beginning of kindergarten until the beginning of Grade 1. Results of the ANOVA revealed a significant interaction effect between time and program, Pillai’s trace = .60, $F(6,132) = 9.37, p < .001, \eta^2 = .30$, indicating a large effect size. Simple main effects analysis was conducted to further investigate this interaction effect. According to the results of this analysis, children in every program made significant gains in WordID abilities between each of the time points. At the first and second time points, the mean WordID score was similar for children across all four kindergarten programs. However, by the third time point (beginning of Grade 1), the average WordID score was significantly higher for children in full-day English kindergarten than for children in both full-day FI ($MD=10.36, SE=2.76$) and half-day FI ($MD=10.58, SE=2.82$) kindergarten programs.

![Figure 5](image-url)

**Figure 5.** Mean English word identification scores at each time point.

**English reading: Word decoding (WD)**

At each time point, children in English kindergarten programs scored higher on WD than children in FI programs. However, within the English group, children in half-day programs scored
higher at times 1 and 2 and children in full-day programs scored higher at time 3. On the FI side, children in full-day scored higher at time 1, but children in half-day scored higher at times 2 and 3.

Figure 6 demonstrates the growth in WD abilities of all four groups of children from the beginning of kindergarten until the beginning of Grade 1. Results of the ANOVA revealed a significant interaction effect between time and program, Pillai’s trace =.26, $F(6,132) = 3.28$, $p =.005$, $\eta^2 = .13$, indicating a moderate effect size. Simple main effects analysis was conducted to further investigate this interaction effect. According to the results of this analysis, children in full-day FI kindergarten and full-day English kindergarten programs made no significant gains in WD skills between time 1 and time 2. However, significant gains in WD abilities were revealed for children in both half-day FI ($MD=1.60$, $SE=.48$) and half-day English ($MD=1.56$, $SE=.54$) kindergarten programs between time 1 and time 2. Between time 2 and time 3, only children from full-day English kindergarten programs made significant gains in WD abilities ($MD=4.55$, $SE=.76$). The analysis also revealed that at the first and second time points the mean WI score was similar for children across all four kindergarten programs; however, at the third time point, the average WD score was significantly higher for children in full-day English kindergarten than for children in full-day FI kindergarten ($MD=4.44$, $SE=1.48$).
Figure 6. Mean English word decoding scores at each time point.

**English writing**

At all time points, children in full-day English kindergarten had the highest scores on the Early Print Task and children in half-day FI had the lowest scores. Results of the ANOVA revealed a significant effect of time on the Early Print Task scores, Pillai’s trace = .61, $F(2,65) = 51.43$, $p < .001$, $\eta^2 = .61$, indicating a large effect size; however, it did not reveal interaction effects between time and program. As the assumption of homogeneity of variances was not met at time 2, Kruskal-Wallis tests were conducted in order to determine whether there were program effects; however, results revealed no significant differences in scores at any time point.

**French literacy outcomes**

In this section, the following literacy skills are presented: French receptive vocabulary (as measured by the adapted PPVT), French word identification (as measured by the adapted Word Identification test) and French word decoding (as measured by the adapted Word Attack test), and French writing (as measured by the adapted Early Print Task). As noted earlier, these measures are not standardized and can therefore yield only raw scores. For this reason, all analyses employ raw
scores. Mean raw scores and standard deviations for the French literacy outcomes at all three time points can be found in Table 7. As previously indicated, only children from FI kindergarten programs (both full-day and half-day) were administered these measures.

Table 7
*Means (and Standard Deviations) for French Literacy Measures at Times 1, 2, and 3*

<table>
<thead>
<tr>
<th>Program</th>
<th>PPVT Time 1 (Mean ± SD)</th>
<th>PPVT Time 2 (Mean ± SD)</th>
<th>PPVT Time 3 (Mean ± SD)</th>
<th>Word ID Time 1 (Mean ± SD)</th>
<th>Word ID Time 2 (Mean ± SD)</th>
<th>Word ID Time 3 (Mean ± SD)</th>
<th>Word Decoding Time 1 (Mean ± SD)</th>
<th>Word Decoding Time 2 (Mean ± SD)</th>
<th>Word Decoding Time 3 (Mean ± SD)</th>
<th>Print Time 1 (Mean ± SD)</th>
<th>Print Time 2 (Mean ± SD)</th>
<th>Print Time 3 (Mean ± SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FI</td>
<td>26.09 (4.75)</td>
<td>37.04 (5.26)</td>
<td>41.30 (4.32)</td>
<td>.83 (3.54)</td>
<td>3.09 (8.20)</td>
<td>6.83 (10.43)</td>
<td>.04 (.21)</td>
<td>.78 (2.11)</td>
<td>1.57 (4.59)</td>
<td>6.96 (1.77)</td>
<td>8.74 (1.82)</td>
<td>9.13 (1.69)</td>
</tr>
<tr>
<td>FDK</td>
<td>26.95 (5.78)</td>
<td>30.20 (4.68)</td>
<td>38.90 (3.35)</td>
<td>.95 (4.61)</td>
<td>2.30 (11.51)</td>
<td>13.30 (.89)</td>
<td>.20 (.82)</td>
<td>.40 (.95)</td>
<td>4.40 (2.39)</td>
<td>5.85 (2.57)</td>
<td>7.75 (1.85)</td>
<td>9.50 (1.85)</td>
</tr>
</tbody>
</table>

As with the English literacy measures, mixed ANOVAs were conducted for each measure, to determine participants’ growth over time in the two programs (full-day and half-day FI kindergarten).

**French receptive vocabulary**

Children in full-day and half-day FI demonstrated nearly identical mean vocabulary scores at time 1; however, at both time 2 and 3, children from full-day FI achieved higher scores. Figure 7 demonstrates the growth in French receptive vocabulary abilities of both groups of children from the beginning of kindergarten until the beginning of Grade 1. Results of the ANOVA revealed a significant interaction effect between time and program, Wilks’ λ = .65, F(2,40) = 10.98, p < .001, η² = .35, indicating a large effect size. Simple main effects analysis was conducted to further investigate this interaction effect. Results indicated that children in both full- and half-day programs made significant gains in French receptive vocabulary between each of the time points. At the first and third time points, the mean receptive vocabulary score was similar for children across both kindergarten programs. However, at the second time point (end of kindergarten), the
average receptive vocabulary score was significantly higher for children in full-day kindergarten than for children in half-day kindergarten ($MD = 6.84, SE = 1.68$).

*Figure 7.* Mean French receptive vocabulary scores at each time point.

**French reading: Word identification (WordID)**

There were no consistent patterns in the results of the WordID measure, with children in half-day kindergarten yielding higher results at times 1 and 3, and children in full-day scoring higher at time 2. Figure 8 demonstrates the growth in French WordID abilities of both groups of children from the beginning of kindergarten until the beginning of Grade 1. Results of the ANOVA revealed a significant interaction effect between time and program, Pillai’s trace = .26, $F(2,40) = 7.19, p < .001, \eta^2 = .26$, indicating a large effect size. Simple main effects analysis was conducted to further investigate this interaction effect. According to the results of this analysis, children in full-day French immersion kindergarten made significant gains in French WordID skills between each of the time points; however, children in half-day French immersion kindergarten only made significant gains between time 2 and time 3 (between the end of
kindergarten and the beginning of Grade 1). There were no significant differences in French WordID abilities by program at any of the time points.

**Figure 8.** Mean French word identification scores at each time point.

**French reading: Word decoding (WD)**

The WD results demonstrate a similar pattern to those from the WordID task, with children in half-day kindergarten yielding higher results at times 1 and 3, and children in full-day scoring higher at time 2. Results of the ANOVA revealed a significant effect of time on the French WD scores, Pillai’s trace = .27, $F(2,40) = 7.27$, $p = .002$, $\eta^2 = .27$, indicating a large effect size; however, it did not reveal program or interaction effects.

**French writing**

While children in full-day kindergarten demonstrated slightly higher writing scores at times 1 and 2, children in half-day programs scored higher at time 3. Results of the ANOVA revealed a significant effect of time on the French early writing scores, Wilks’ $\lambda = .35$, $F(2,40) = 37.50$, $p < .001$, $\eta^2 = .65$, indicating a large effect size; however, it did not reveal program or interaction effects.
### Summary of literacy outcomes

A summary of all significant findings is presented in Table 8.

<table>
<thead>
<tr>
<th>Language</th>
<th>Instrument</th>
<th>Significant findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English literacy measures</strong></td>
<td>PPVT</td>
<td>Children in all programs made significant gains between each time point.</td>
</tr>
<tr>
<td></td>
<td>WJ – Word identification</td>
<td>Children in all programs made significant gains between each time point.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children in English FDK had significantly higher scores than children in FI FDK and HDK at time 3.</td>
</tr>
<tr>
<td></td>
<td>WJ – Word decoding</td>
<td>Only children in FI HDK and English HDK made significant gains between time 1 and time 2.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Only children in English FDK made significant gains between time 2 and time 3.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>At time 3, children in English FDK had significantly higher scores than children in FI FDK.</td>
</tr>
<tr>
<td><strong>Print task</strong></td>
<td></td>
<td>Children in all programs made significant gains between each time point.</td>
</tr>
<tr>
<td><strong>French literacy measures</strong></td>
<td>Adapted PPVT</td>
<td>Children in both programs made significant gains between each time point.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>At time 2, children in FI FDK had significantly higher scores than children in FI HDK.</td>
</tr>
<tr>
<td></td>
<td>Adapted word identification</td>
<td>Only children in FI FDK made significant gains between each time point; children in FI HDK only made significant gains between time 2 and 3.</td>
</tr>
<tr>
<td></td>
<td>Adapted word decoding</td>
<td>Children in both programs made significant gains between each time point</td>
</tr>
<tr>
<td></td>
<td>Adapted print task</td>
<td>Children in both programs made significant gains between each time point</td>
</tr>
</tbody>
</table>

### 5.1.2 Non-literacy outcomes
In this section, number sense (as measured by the Number Knowledge Test), as well as results from the child drawings and interviews, are presented.

**Number sense**

**Analysis of scores**

Mean raw scores and standard deviations for number sense at all three time points, can be found in Table 9.

<table>
<thead>
<tr>
<th>Program</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>FI FDK</td>
<td>10.04</td>
<td>11.65</td>
<td>13.96</td>
</tr>
<tr>
<td></td>
<td>(3.47)</td>
<td>(4.00)</td>
<td>(4.40)</td>
</tr>
<tr>
<td>English FDK</td>
<td>8.91</td>
<td>9.91</td>
<td>16.91</td>
</tr>
<tr>
<td></td>
<td>(2.91)</td>
<td>(3.65)</td>
<td>(3.48)</td>
</tr>
<tr>
<td>FI HDK</td>
<td>8.80</td>
<td>10.85</td>
<td>12.30</td>
</tr>
<tr>
<td></td>
<td>(2.71)</td>
<td>(2.54)</td>
<td>(3.95)</td>
</tr>
<tr>
<td>English HDK</td>
<td>9.25</td>
<td>11.13</td>
<td>13.75</td>
</tr>
<tr>
<td></td>
<td>(3.15)</td>
<td>(3.95)</td>
<td>(3.66)</td>
</tr>
</tbody>
</table>

As with the literacy measures, a mixed ANOVA was conducted in order to determine differences in participants’ scores over time. Figure 9 demonstrates the growth in number sense abilities of all four groups of children from the beginning of kindergarten until the beginning of Grade 1.

Results of the ANOVA indicated a significant interaction effect between time and program, Wilks’ $\lambda = .80, F(6,130) = 2.57, p = .02, \eta^2 = .11$. Simple main effects analysis was conducted to further investigate this interaction effect. Results indicated that only children in half-day FI kindergarten made significant gains in number sense between time 1 and time 2 ($MD=2.05$, $SE=.74$). However, between time 2 and time 3, only the half-day FI children did not demonstrate
significant gains. Children in full-day FI ($MD=2.30, SE=.81$), full-day English ($MD=7.00, SE=1.18$), and half-day English ($MD=2.63, SE=.97$), all displayed significantly higher number sense scores between time 2 and time 3. When examining program differences, the only significant finding was that children in full-day English kindergarten were ahead of children in half-day FI kindergarten at time 3 ($MD=4.61, SE=1.49$).

![Graph](image)

**Figure 9.** Mean number sense scores at each time point.

**Analysis of French language usage**

Figures 10, 11, and 12 indicate the percentages of children in full-day and half-day FI kindergarten who used French at various points during the Number Knowledge Test at each time point. It should be noted that at both time 1 and time 2, all but four participants across all programs were able to count to 10 in English with no errors.

Two-way contingency table analyses were conducted in order to determine whether there were significant program differences in the frequency of French language usage during completion of the Number Knowledge Test. However, while results indicated that there were frequency differences by program related to the amount of French used, they only represented significant
differences at time 2, with more children in half-day FI using French than children in full-day FI kindergarten, \( \chi^2(1, N = 43) = 8.23, p = .004 \).

Figure 10. Percentage of FI students able to count to 10 in French at each kindergarten time point.

Figure 11. Percentage of FI students who chose French as their initial language choice for counting to 10.

Figure 12. Percentage of FI students who used any French while completing the Number Knowledge Test.
Summary of number sense outcomes

A summary of all significant findings is presented in Table 10.

Table 10
Summary of Significant Findings for Number Knowledge Test

<table>
<thead>
<tr>
<th>Significant findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number knowledge</td>
</tr>
<tr>
<td>Only children in FI HDK made significant gains between time 1 and time 2</td>
</tr>
<tr>
<td>Children in all programs except for FI HDK made significant gains between time 2 and time 3</td>
</tr>
<tr>
<td>Children in English FDK had significantly higher scores than children in FI HDK at time 3</td>
</tr>
</tbody>
</table>

Children’s drawings

There were two aspects of the children’s drawing task that were of interest for all participants: drawing complexity and drawing content. The first set of analyses examines drawing complexity, which as described previously, refers to children’s use of reference lines and the integration of the various elements of the drawings. Mean scores for drawing complexity at all three time points, can be found in Table 11.

Table 11
Means (and Standard Deviations) for Drawing Complexity at Times 1, 2, and 3

<table>
<thead>
<tr>
<th>Program</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>FI FDK</td>
<td>0.65</td>
<td>1.61</td>
<td>1.70</td>
</tr>
<tr>
<td></td>
<td>(0.98)</td>
<td>(1.08)</td>
<td>(1.22)</td>
</tr>
<tr>
<td>English FDK</td>
<td>0.64</td>
<td>1.36</td>
<td>2.45</td>
</tr>
<tr>
<td></td>
<td>(0.81)</td>
<td>(0.81)</td>
<td>(1.29)</td>
</tr>
<tr>
<td>FI HDK</td>
<td>1.10</td>
<td>1.45</td>
<td>1.85</td>
</tr>
<tr>
<td></td>
<td>(1.17)</td>
<td>(1.05)</td>
<td>(1.18)</td>
</tr>
<tr>
<td>English HDK</td>
<td>1.19</td>
<td>1.06</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>(1.01)</td>
<td>(0.93)</td>
<td>(1.16)</td>
</tr>
</tbody>
</table>

A mixed ANOVA was conducted in order to determine differences in participants’ scores over time. Figure 13 demonstrates the growth drawing complexity of children in full-day and half-day
kindergarten from the beginning of kindergarten until the beginning of Grade 1. Results of the ANOVA indicated a significant interaction effect between time and program, Wilks’ $\lambda = .90$, $F(6,130) = 2.12$, $p = .05$, $\eta^2 = .09$. Simple main effects analysis was conducted to further investigate this interaction effect. According to the results of this analysis, only children in full-day kindergarten made significant gains in drawing complexity. Children in full-day FI had increased their scores significantly between times 1 and 2 ($MD=.96$, $SE=.25$), and children in full-day English increased their scores significantly between times 2 and 3 ($MD=1.09$, $SE=.39$).

![Figure 13](image.png)

*Figure 13.* Mean drawing complexity scores at each time point.

The second element of interest in the children’s drawings was the content of the drawings and more specifically, the themes that were depicted. Figure 14 illustrates the frequencies of each of the four themes at each time point. Children included play in their drawings more frequently than any other theme at all time points; however, at time 3, academic themes were represented almost as often as play.
Figure 14. Frequencies of themes in children’s drawings at each time point.

Child interviews

Child interviews took place in English at all three time points, and in French at the final time point. The results from the English interviews are examined first. Analyses of children’s responses in the interviews are discussed by question.

English interviews

The first interview question ‘Tell me what you do from the time you get to school in the morning until you leave school at the end of the day,’ was analyzed for two purposes. The first was the length of the script and the second was content – specifically whether children mentioned play or academics when discussing their day at school. Mean word counts for each school at each time point can be found in Table 12. One-way ANOVAs were conducted to examine program differences in mean word counts at each time point. However, as the assumption of homogeneity of variances was not met at time 1, Kruskal-Wallis tests were conducted instead. Results indicated no significant differences at any time point in mean word count between the four programs, or between children in full-day and half-day kindergarten programs. However, when comparing mean word counts of children in FI and English kindergarten, there was a significant difference at
time 3, $\chi^2(1, N = 70) = 6.70, p = .01$, with children in English kindergarten demonstrating a significantly greater word count.

<table>
<thead>
<tr>
<th>Program</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>FI FDK</td>
<td>53.04</td>
<td>57.87</td>
<td>73.39</td>
</tr>
<tr>
<td></td>
<td>(53.51)</td>
<td>(48.50)</td>
<td>(88.08)</td>
</tr>
<tr>
<td>English FDK</td>
<td>39.83</td>
<td>35.58</td>
<td>86.36</td>
</tr>
<tr>
<td></td>
<td>(39.54)</td>
<td>(37.92)</td>
<td>(38.89)</td>
</tr>
<tr>
<td>FI HDK</td>
<td>74.95</td>
<td>56.10</td>
<td>58.00</td>
</tr>
<tr>
<td></td>
<td>(103.59)</td>
<td>(65.36)</td>
<td>(47.41)</td>
</tr>
<tr>
<td>English HDK</td>
<td>25.83</td>
<td>41.00</td>
<td>81.56</td>
</tr>
<tr>
<td></td>
<td>(15.50)</td>
<td>(31.46)</td>
<td>(48.23)</td>
</tr>
<tr>
<td>Total</td>
<td>50.16</td>
<td>49.56</td>
<td>72.90</td>
</tr>
<tr>
<td></td>
<td>(65.64)</td>
<td>(48.83)</td>
<td>(62.67)</td>
</tr>
</tbody>
</table>

Children’s scripts from the first question were then analyzed in order to examine how often play and academic themes were brought up. Figure 15 illustrates the frequencies of each of the two themes at each time point. It should be noted that some children mentioned both play and academics during their interviews, in which case both are represented in the counts in the figure.

![Figure 15](image)

*Figure 15. Frequencies of themes in children’s interview scripts at each time point.*

One-sample chi-square tests were conducted to determine whether the themes of play and academics were discussed more frequently at each time point. For these analyses, children who
mentioned both play and academics were removed from the analysis, as their mention of both
themes would cancel each other out. At time 1, the results of the test were significant, with play
represented significantly more than academic, $\chi^2(1, N = 24) = 16.67, p < .001$. At time 2, play was
again represented significantly more than academic, $\chi^2(1, N = 31) = 17.07, p < .001$. However, at
time 3, academic was represented significantly more than play, $\chi^2(1, N = 35) = 8.26, p = .004$.

The second interview question, *Do you like school?* yielded answers ‘no’, ‘yes’, or ‘*I
don’t know*. Frequency counts for each of these answers were conducted at each time point.
Children answered ‘yes’ almost entirely; 92% at time 1, 93% at time 2, and 97% at time 3. Due to
these high frequencies across all participants, no further analyses were conducted for this question.

The third interview question ‘*What is your favourite thing about kindergarten/Grade 1?*’
was analyzed by type of responses. Figure 16 illustrates the frequencies of each coded response at
each time point. While *play* was the answer given most frequently at time 1 and time 2, at time 3
children responded that *academic* aspects were their favourite parts of school.

![Figure 16. Frequencies of answers to the question ‘What is your favourite thing about
toddergarten/Grade 1’ at each time point.](image-url)
The fourth interview question ‘What is the most important thing about kindergarten/Grade 1?’ was also analyzed by type of responses. Children’s responses were coded into 11 different categories; however, only those having a frequency of at least three at any time point were included in the analyses. Figure 17 illustrates the frequencies of each coded response at each time point. While the frequencies varied at each time point, there were some noticeable trends. At each time point, rules was mentioned the most frequently, followed by learn, work/homework, academic, and French.

![Figure 17](image)

*Figure 17. Frequencies of answers to the question ‘What is the most important thing about kindergarten/Grade 1?’ at each time point.*

The fifth interview question ‘What do your teachers do?’ was also analyzed by type of responses. Figure 18 illustrates the frequencies of each coded response at each time point. While the frequencies varied at each time point, help was consistently among the two most frequent responses and teach was consistently among the three most frequent responses.
Figure 18. Frequencies of answers to the question ‘What do your teachers do?’ at each time point.

The final question of the interview was only applicable to students in FI programs (both full-day and half-day) and asked students ‘Do you like going to school in French?’ Frequency counts for each answer (‘no’, ‘yes’, or ‘I don’t know’) were conducted at each time point. At time 1 and time 3, 79% of participants responded ‘yes’, and at time 2, 88% of the responses were ‘yes’. Children were then asked ‘why’ they liked or disliked going to school in French, and responses were categorized. Figure 19 illustrates the frequencies of the most common responses at time 2 and time 3. Time 1 was left out of these analyses because at that time point, 77% of children responded ‘I don’t know’.

Figure 19. Frequencies of answers to the question ‘Why do you like going to school in French?’
**French interviews**

The French interview consisted of three questions and each is analyzed separately. As well, children’s ability to answer the questions in French is explored.

The first question asked was ‘Qu’est-ce que tu fais à l’école?’ (What do you do at school?). Children’s answers were categorized by type of response. Figure 20 illustrates the frequency of each type of response – categories represented are those with three or more occurrences.

![Figure 20](image-url)

*Figure 20. Frequencies of answers to the question ‘Qu’est-ce que tu fais à l’école?’*

The second question ‘Qu’est-ce que tu aimes faire à l’école?’ (What do you like to do at school?), was analyzed in the same way as the previous question. Children responded that play was what they liked to do at school more than any other response, Figure 21 illustrates the frequency of each type of response – categories represented are those with three or more occurrences.

![Figure 21](image-url)

*Figure 21. Frequencies of answers to the question ‘Qu’est-ce que tu aimes faire à l’école?’*
The final question of the French interview asked ‘*Aimes-tu parler en français?*’ (Do you like speaking French?). Possible responses were ‘yes’ or ‘no’. Eighty-four percent of children responded ‘yes’, which is slightly higher than the percentage of children who responded that they liked going to school in French at time 3 of the English interview.

Following analyses of responses to each question, children’s overall use of French throughout the interview was examined. Children were given a score of ‘*none*’, ‘*some*’, or ‘*all*’, and the frequencies of each of these scores were calculated. In total, 7% of children didn’t use any French, 44% used some French, and 49% of children responded entirely in French. A two-way contingency table analysis was conducted to determine whether there were program differences (children from full-day and half-day FI kindergarten) in the amount of French in children’s responses; however, no program differences were found.

Finally, children’s total word counts for the French interview were calculated. Total mean word counts, as well as mean word counts by program (children from full-day and half-day kindergarten programs) can be found in Table 13. A one-way ANOVA was conducted to examine program differences in mean word counts. While children from full-day FI kindergarten programs had a higher mean word count, this did not represent a significant difference, $F(1,41) = 0.13$, $p > .05$.

<table>
<thead>
<tr>
<th>Program</th>
<th>Mean word count</th>
</tr>
</thead>
<tbody>
<tr>
<td>FI FDK</td>
<td>23.91 (43.78)</td>
</tr>
<tr>
<td>FI HDK</td>
<td>20.00 (23.41)</td>
</tr>
<tr>
<td>Overall means</td>
<td>22.09 (35.44)</td>
</tr>
</tbody>
</table>
Summary of drawing and interview findings

A summary of all significant findings for the drawing task and the child interviews is presented in Table 14.

Table 14
Summary of Statistically Significant Findings for Drawing Task and Child Interviews

<table>
<thead>
<tr>
<th>Measure</th>
<th>Significant findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drawing task</td>
<td>Children in FI FDK were the only ones to increase their drawing complexity score significantly between time 1 and time 2.</td>
</tr>
<tr>
<td></td>
<td>Children in English FDK were the only ones to increase their drawing complexity score significantly between time 2 and 3.</td>
</tr>
<tr>
<td>English interview scripts</td>
<td>Play represented in scripts significantly more than academic at time 1 and time 2; academic represented significantly more in scripts than play at time 3.</td>
</tr>
<tr>
<td></td>
<td>Children in English programs had a significantly greater script word count than children in FI programs at time 3.</td>
</tr>
<tr>
<td>French interview scripts</td>
<td>No significant findings.</td>
</tr>
</tbody>
</table>

5.2 Parent measures

Analyses of the parent questionnaires were conducted to investigate parents’ responses about their children’s experiences in kindergarten. These questions were asked in the fall of the kindergarten year, and again in the spring. Questions from the fall questionnaire are analyzed first.

Fall questionnaire

The first question asked parents whether their child enjoyed kindergarten. Eighty-one percent of parents responded that their child enjoyed kindergarten very much, 15% responded that their child usually enjoyed kindergarten, and 4% responded that their child demonstrated some apprehension towards kindergarten.
Parents of children in FI programs were then asked whether their child enjoyed going to school in French. Eighty-four percent of parents responded that their child enjoyed French, 14% responded that their child usually enjoyed French, and 2% responded that their child demonstrated some apprehension towards French. Parents were then asked to indicate their child’s attitude towards French. Results were similar, with 84% of parents responding that their child had a very positive attitude towards learning French and 16% responding that their child had a mostly positive attitude towards learning French.

**Spring questionnaire**

While all parents of participating children were asked to complete the spring questionnaire, only 36 out of 73 did so. Therefore, these analyses investigate overall frequencies only, and not program differences. Once again, parents were asked about their child’s enjoyment of kindergarten. Results were similar to those from the fall, with 86% of parents responding that their child enjoyed kindergarten very much, 11% responding that their child usually enjoyed kindergarten, and 3% responding that their child demonstrated some apprehension towards kindergarten.

Parents of children in FI programs were again asked whether their child enjoyed going to school in French. Eighty-nine percent of parents responded that their child enjoyed French and 11% responded that their child usually enjoyed French. Parents were then asked to indicate their child’s attitude towards French. Results were similar, with 85% of parents responding that their child had a very positive attitude towards learning French and 15% responding that their child had a mostly positive attitude towards learning French.

Finally, all parents were asked what aspects of kindergarten their child discussed most often. Figure 22 illustrates the topics children discussed most frequently – all themes that were
indicated by at least three parents are represented. *Friends* was represented more than any other themes, with 64% of parents reporting this as an element their children discuss when talking about kindergarten.

*Figure 22.* Topics children discuss about kindergarten.
Chapter 6: Discussion

In this chapter, key findings for each research question are discussed in relation to the literature. Children’s academic outcomes in the various kindergarten models are addressed first, followed by children’s experiences in these programs. Finally, children’s use of French in French immersion kindergarten contexts is reviewed. The chapter concludes by addressing some limitations of the study and discussing the implications for practice and future research

6.1 Children’s academic outcomes in the four kindergarten models

6.1.1 Summary of key findings

In order to answer the question of children’s academic outcomes in the four kindergarten models, children’s outcomes in the areas of English and French literacy (vocabulary, word identification, word decoding, and printing), mathematics, and drawing complexity were assessed at the beginning of kindergarten, the end of kindergarten, and at the beginning of Grade 1. In terms of English literacy measures, there were no program differences in vocabulary or printing; children in all programs made significant gains between each time point. However, program differences were evident in both reading measures. While children in all programs made significant gains in word identification between each time point, by the beginning of Grade 1, children who had completed English FDK scored significantly higher than both groups of FI children (full-day and half-day). In word decoding, only children from half-day kindergarten programs (both English and FI) made significant gains between the beginning and the end of the kindergarten year and only children in FDK English programs made significant gains between the end of kindergarten and the beginning of Grade 1. Furthermore, at the beginning of Grade 1, children from FDK English programs had significantly higher scores in word decoding than children from FI FDK programs.
Moving on to French literacy measures, where only children from FI programs (full-day and half-day) are included, all children made significant gains in vocabulary between each time point. However, at the end of the kindergarten year, children in FDK programs had significantly higher scores than children in half-day programs. With regard to word identification, only children in FDK programs made significant gains between the beginning and the end of kindergarten, and children in both programs made significant gains between the end of kindergarten and the beginning of Grade 1. There were no program differences in the areas of word decoding and printing; children in both programs made significant gains between each time point.

In the area of mathematics, there were program differences both in terms of gains made between time points and scores at each time point. Only children in half-day FI kindergarten made significant gains in number knowledge between the beginning and the end of kindergarten; however, they were also the only group not to demonstrate significant gains between the end of kindergarten and the beginning of Grade 1. As well, by the beginning of Grade 1, children from English FDK programs had significantly higher scores in number knowledge than children from half-day FI programs. Given that these program differences do not reflect any trends in terms of program (i.e., FDK vs. HDK or FI vs. English), they are not examined in further detail in this section.

Finally, in the area of drawing complexity, only children from FDK programs made significant gains between time points, with children from FI FDK programs demonstrating these gains between the beginning and the end of the kindergarten year and children from English FDK programs between the end of kindergarten and the beginning of Grade 1. The key findings related to children’s academic outcomes are discussed in the following section.
6.1.2 Literacy outcomes

English literacy outcomes

The findings related to English literacy outcomes are somewhat inconsistent with the literature on FDK, as this study reveals that children from FDK programs do not demonstrate significant advantages in the areas of vocabulary, reading, and printing. Moreover, this study found that children from half-day kindergarten programs – both English and FI – demonstrated greater gains in word decoding over the course of the kindergarten year. This result is contrary to numerous findings, including those of Baskett, Bryant, White, and Rhoads (2005), Carnes and Albrecht (2007), Cooper, Allen, Patall, and Dent (2010), Lee, Burkam, Ready, Honigman, and Meisels (2006), who found that attending full-day kindergarten had a positive impact on children’s literacy development in various areas, including word decoding. However, given that the FDK program under examination in this study consists of a new play-based curriculum and not only of more hours spent in the classroom, it is possible that this result is a reflection of the curriculum content. Supporting this theory is the information from the educator interviews, where both the half-day English and FI teachers described a more structured and established schedule, with specific times allotted to phonics and other key components of literacy instruction. These program differences may explain why the children in half-day kindergarten are ahead in word decoding at the end of the kindergarten year.

While these findings may be inconsistent with the literature on full-day kindergarten, they are reflective of trends in the area of English literacy development in French immersion. Once again, while there were no differences in vocabulary and printing scores between students in English and FI programs, there were significant differences on both reading measures at the beginning of Grade 1, with children in FDK English programs achieving significantly higher word
identification scores than both groups of FI children (full-day and half-day), and significantly higher word decoding scores than children in FI FDK. This finding is in keeping with research demonstrating that children in early FI programs experience initial lags in their English reading abilities (Barik & Swain, 1975, 1975; Cummins, 1998). However, as certain reading skills such as phonological awareness (Comeau, Cormier, Grandmaison, & Lacroix, 1999; Cormier & Kelso, 2000), grammar and word identification (Jared, Cormier, Levy, & Wade-Woolley, 2011), and morphological awareness (Deacon, Wade-Woolley, & Kirby, 2007) in one language predict reading skills in other languages, it is of great importance to review FI children’s scores on French literacy measures, as that will predict their later English reading abilities (Cummins, 2000). What is perhaps most relevant to note given this study’s focus on full-day FI kindergarten, is that by Grade 1, only the children who had completed full-day FI kindergarten remained at a disadvantage when it came to word decoding scores when compared to children from full-day English programs. In this case, the curriculum cannot be used as an explanation, given that both the English and the FI groups are following the new, play-based model. Therefore, it seems that while FDK does not have a significant impact on English reading scores when compared to half-day programs in the same language, there is an impact of being in school for full days when compared to children attending school in French.

**French literacy outcomes**

When comparing results on the French measures, significant advantages of the FDK program were revealed both at the end of the kindergarten year and at the beginning of Grade 1. While all children made significant gains in French receptive vocabulary between each time point, children from FDK programs had significantly higher scores at the end of the kindergarten year. In discussing this finding, it is important to revisit the fact that children from half-day FI kindergarten
had an additional year of French schooling (recall their school begins the FI program at the JK level), as well as the fact that the half-day FI school was a French immersion center, meaning that the school offers only FI education and not the regular English program. In a comparison of Grade 5 FI students’ results from dual-track and FI centers, Lapkin, Andrew, Harley, Swain, and Kamin (1981) found that students from FI centers scored higher on measures of French comprehension (both written and auditory) than children from dual-track schools; however, results from the current study do not demonstrate this advantage. This indicates that the full-day FI program is perhaps more advantageous than either starting French education earlier or attending school in an FI center. Indeed, Swain (1981) found that the age at which a child begins FI is less predictive of their later French fluency than the time on task or intensity of the language learning. Therefore, attending a full-day FI kindergarten program for one year would yield higher results than attending a half-day FI kindergarten program for two years. This finding also provides support for beginning the FI FDK program at the JK level, as children would then benefit from both an earlier beginning and the intensity of the program.

The educators from FI FDK programs discussed the fact that on top of planning specific times to teach particular words, they also made use of naturally occurring opportunities to teach vocabulary. This pedagogical approach provides a possible explanation for the finding that children from FI FDK programs demonstrated significantly higher scores in French receptive vocabulary at the end of the kindergarten year (Harley, 1996). Cummins’ (1981a) study comparing children in half-day FI programs to children in full-day bilingual programs (half-day French and half-day English), found that there were no advantages in English or French outcomes to being in a full-day bilingual program. However, the current study demonstrates that, while there may not be an advantage to introducing English earlier in FI programs, there is certainly an advantage to
exposing children to more French, particularly in terms of meaningful and spontaneous conversations and vocabulary comprehension. The fact that only children from FI FDK programs made significant gains in word identification between the beginning and the end of the kindergarten year is also not surprising, given their advanced vocabulary understanding. While the importance of vocabulary for later word reading has been demonstrated repeatedly (e.g., Nation & Snowling, 2004; Ouellette, 2006), Verhoeven (2000) suggests that L2 vocabulary knowledge is an even greater predictor of sight word reading in second language learners.

It is important to note that, while children from FI FDK programs experienced significant advantages compared to their half-day FI peers in terms of French literacy over the course of the kindergarten year, these results were not maintained at the beginning of Grade 1. Therefore, while FI FDK seems to provide an enriched French literacy experience for children, it appears to be limited to the kindergarten year, as by Grade 1, the children from half-day FI programs catch up.

6.1.3 Drawing complexity

When comparing drawing complexity scores, significant gains were made only by children from FDK programs, with children from FI FDK demonstrating significantly increased scores between the beginning and the end of the kindergarten year and children from English FDK programs between the end of kindergarten and the beginning of Grade 1. It is also worth noting that the two FDK groups (English and FI) had the lowest scores on drawing complexity at the beginning of kindergarten, though not significantly lower than the half-day groups. The fact that children from FDK programs experienced such significant gains in drawing complexity may simply be connected to the time available in their kindergarten program for drawing tasks. Looking back on the educator interviews, nearly all educators from FDK programs noted the benefits of the increased time in the new kindergarten model, with both educators and students
being less rushed to complete certain tasks in order to “check them off the list”, and having more
time available to explore, create, and learn. Additionally, given the play-based nature of the FDK
programs, children may be developing greater cognitive abilities such as self-regulation and
problem-solving skills (Whitebread, Coltman, Jameson, & Lander, 2009), which allow them to
create more complex representations in their drawings (Bosacki, 2013).

6.2 Children’s experiences in the four kindergarten models

6.2.1 Summary of key findings

In order to understand children’s experiences in the four kindergarten models, participants
were asked to draw pictures of themselves doing something at school and were interviewed about
their day at school at the beginning of kindergarten, the end of kindergarten, and the beginning of
Grade 1. Parents were also asked to discuss their children’s experiences in kindergarten by filling
out a questionnaire at the end of the kindergarten year. In terms of the content of children’s
drawings, children drew themselves at play more frequently than any other activity (academic,
work, or physical activity) at all time points; however, by the beginning of Grade 1, academic
activities were represented almost as frequently. In terms of the interview, when asked to describe
their day at school, children from English programs (both half- and full-day) had significantly
longer script word counts at the beginning of Grade 1 than children from FI programs. With regard
to the content of the interviews, play was discussed significantly more than academics at both the
beginning and the end of kindergarten, and academics significantly more than play at the
beginning of Grade 1. The same pattern was evident when asking children about their favourite
thing about school; with most children responding play during the kindergarten year and work in
Grade 1. Finally, at each time point, when asked about the most important thing school, children responded most frequently with *rules,* followed by *learning.*

Children from FI programs were also interviewed in French at the beginning of Grade 1 (the only time point where an interview was conducted in French as well as in English). During the French interview, children from both half- and full-day FI kindergarten programs mentioned *play* most often as something they did at school, and also indicated that *play* was their favourite thing about school. As well, as part of their English interviews at all time points, children from FI programs were asked whether they enjoyed going to school in French; most children indicated that they did, with no program differences between children from half- and full-day programs. Finally, children from FI programs were asked why they enjoyed going to school in French at all three time points. At the beginning and the end of kindergarten, children from both half- and full-day programs mainly responded “French is fun;” however, at the beginning of Grade 1, the most common response was “It’s important to learn another language.”

When parents were asked about their children’s experiences in kindergarten, almost all indicated that their child enjoyed attending their kindergarten program. Furthermore, when parents of children in FI kindergarten (full-day and half-day) were asked whether their child enjoyed attending school in French, almost all responded positively. Finally, parents reported that children talked most frequently about their *friends* in kindergarten, followed by *play.* The key findings related to children’s experiences in kindergarten are discussed in the following section.

6.2.2 *Children’s experiences in the four kindergarten models*

The findings related to children’s experiences in all models highlight the importance of play in the delivery of any kindergarten program. Regardless of whether children are enrolled in a play-based program, play is what they enjoy the most about school. This result is consistent with
Heagle, Timmons, Hargreaves, and Pelletier’s (2016) and Pelletier’s (2012a; 2012b; 2014) findings that, regardless of program, kindergarten children report play as being their favourite thing about school significantly more than any other aspect. Pelletier’s findings that by Grade 1, children start to report academics as their favourite thing about school were also replicated in this study, demonstrating a shift in children’s thinking. This theme is also reflected in children’s drawings when, given the opportunity to draw themselves doing anything at school, children drew themselves at play more often than any other activity during the kindergarten year, but by Grade 1, drawings with academic themes were represented almost equally. Indeed, if children’s responses in kindergarten highlight the importance of play, their responses in Grade 1 emphasize the importance at this level of work and learning as it relates to specific academic areas.

6.2.3 Children’s understanding of their experiences in English and FI kindergarten

When comparing the experiences of children in English and FI kindergarten, some differences were noted. When asked to describe their day at school, children from English kindergarten programs had longer scripts than children from FI kindergarten programs at the beginning of Grade 1. This finding is inconsistent with similar research by Pelletier (1998; 1999), who found that children from FI kindergarten had longer and more complex scripts than children from English programs when describing their school day. Given that at the kindergarten level, children from FI programs had greater script lengths than those from English programs (though the differences were not statistically significant), this finding does not seem to indicate that children from FI programs have less understanding of their day at school, but rather that the children from English programs make great gains in their ability to talk about their day between kindergarten and Grade 1.
Another finding worth examining in greater detail is the discrepancy between what children reported as their favourite thing about school when interviewed in English and in French. Children from FI programs were interviewed in French only at the third time point (the beginning of Grade 1). As discussed earlier in the chapter, during the English interviews, the majority of children identified play as their favourite thing about school at the kindergarten level, but this evolved to work by the beginning of Grade 1. This was consistent for children in both English and FI programs. However, when interviewed in French at the beginning of Grade 1, children mentioned play more often than any other aspect of school when asked about what they did at school and about their favourite thing at school. This inconsistency may simply reflect the limited French vocabulary that exists among children in early FI programs and the fact that their communicated messages may not accurately reveal their thoughts and ideas (Walsh & Yeoman, 1999). Children in early FI programs are very familiar with the word “jouer” (to play), and it may be easiest for them to discuss this than to think of less familiar words to accurately reflect their experiences at school. Given that the French script lengths were much shorter than the English script lengths, it is clear that even when children attend school in French, they are more capable of describing their experiences in their first language.

Finally, children in both full-day and half-day FI programs responded that they liked attending school in French at all time points, but demonstrated a developing understanding of why they enjoyed learning French. At the end of the kindergarten year, children most frequently responded that they simply liked French or French was fun. While many children responded in the same way at the beginning of Grade 1, the answer given most frequently was that it is important to learn or to speak another language. This may be a reflection of the way French was learned in the kindergarten and Grade 1 levels; in their interviews, kindergarten educators from both full-day and
half-day FI programs discussed teaching French through songs, games, and activities. Therefore, it is not surprising that in kindergarten, the children associate learning French with fun and playing. While Grade 1 teachers were not interviewed, it can be assumed that there is less of a focus on play at that level and that greater emphasis is placed on the importance of learning and understanding French in order to access information discussed in class.

6.2.4 Parent perspectives

Parent perspectives of their children’s experiences in the different kindergarten models were obtained through questionnaires. When asked about their children’s enjoyment of kindergarten, no program differences were found, and nearly all parents responded that their child generally enjoyed attending kindergarten. As well, when parents of children in FI kindergarten (both full- and half-day) were asked about their child’s enjoyment of and attitude towards learning French, almost all responded positively. The fact that there are no program differences in terms of program enjoyment should be considered a reassuring finding, as regardless of kindergarten model, enjoyment of school in the early years sets children up for later academic motivation and success (Ladd, Buhs, & Seid, 2000). While Ontario’s FDELK program aims to improve children’s kindergarten experiences and outcomes (Ontario Ministry of Education, 2010a), it is important that children who did not have the opportunity to participate in this program still have positive experiences in their early school years.

Parents were also asked to report the aspects about kindergarten their children discussed at home the most regularly. While many elements of the kindergarten program were revealed, parents reported that their children discussed their friends most often when talking about kindergarten. This finding underlines the importance of social development in kindergarten and the role that children’s emerging peer relationships have on their early school experiences,
regardless of the kindergarten model. The FDELK curriculum identifies personal and social
development as one of the main areas of learning (Ontario Ministry of Education, 2010a), and
provides increased time for children’s play and for the development of relationships with peers,
demonstrating its understanding and support for this key developmental domain.

6.3 Children’s use of French in FI kindergarten

Though not one of the original research questions, children’s spontaneous use of French
became a topic of interest once child data collection began, as it was observed that some children
chose to respond in French over English in certain instances. Therefore, the question of whether
this spontaneous use of French may be connected to kindergarten model became an area of
investigation. Children had multiple opportunities to use French, even during the administration of
the English measures. As well, given that children were interviewed in French at the beginning of
Grade 1, it was possible to compare the length of their French scripts to determine whether there
were program differences.

The first instance in which the use of French was examined was during the French
interviews. While the questions were posed in French and children were asked to answer in French
to the best of their abilities, some were able to respond entirely in French while others chose to
answer completely in English. However, there were no program differences in terms of the ability
to respond in French. As well, though children from FI FDK kindergarten programs had a higher
mean script word count than those from half-day FI programs, the difference was not significant.
Therefore, it seems that attending FI kindergarten all day, every day, does not put children at an
advantage in terms of being able to discuss their school day in French (though it also does not put
them at a disadvantage).
However, program differences were found in the spontaneous use of French during the administration of the Number Knowledge Test. While only statistically significant at time 2, children from half-day FI kindergarten used French more often at each time point during the test, whether to count out loud, provide an answer, or ask for clarification. As well, when completing the test at the kindergarten level (Time 1 and Time 2), children were asked to begin by counting to 10. Children from FI programs were simply asked to count to 10 (with instructions administered in English) and whichever language they responded in first, they were asked to follow up with the other language. At both the beginning and the end of kindergarten, children from half-day FI programs chose French as their initial language for counting more often than children from FI FDK programs. Therefore, at least in terms of the mathematics assessment, children from half-day FI programs spontaneously used French more frequently than children from FI FDK programs, which does not support the initial hypothesis. However, as indicated earlier in this chapter, children in half-day FI programs had an additional year of FI instruction and were attending school in an FI centre. While this did not seem to provide half-day FI children with an advantage in terms of French literacy outcomes, being surrounded by an entirely French environment may support their ability to use French spontaneously in conversation. A second possibility could be that having attended both JK and SK in French, these children have only ever been exposed to mathematics instruction in French, and therefore, this is the language in which they are most comfortable addressing this area.

6.4 Implications for education

Findings from this study have important implications, both for kindergarten programs in general, and for full-day FI kindergarten in particular. Children’s focus on play when asked to describe their experiences in kindergarten, whether verbally or through drawings, demonstrates the
significance of play as part of any kindergarten program. Whether in half-day or full-day play-based programs, children seem to differentiate play activities from work, learning, or specific activities related to academic areas (literacy, mathematics, science, etc.) and in order to ensure their enjoyment of school and their engagement in learning, it is necessary to provide opportunities for play and free exploration. Furthermore, academic learning and play opportunities do not need to be mutually exclusive. In a play-based program, the lines between work, learning, and play, are likely to be blurred for children, meaning that children are learning academic content but that they identify the activity as play.

With the exception of English word decoding, children in FDK programs (in both English and FI contexts) scored higher on all literacy measures at the end of the kindergarten year than those from half-day programs. While these results did not all hold through the beginning of Grade 1, this finding has important implications for FDK teachers in both English and FI programs. It appears that children in FDK programs would benefit from more explicit instruction in particular aspects of literacy, specifically phonics. Educators in both English and FI half-day programs reported devoting time every day to phonics in instruction, and students in these programs showed significant gains in English word decoding skills, while children from FDK programs did not.

Focusing specifically on full-day FI kindergarten, there were some noteworthy differences in terms of academic outcomes for children in FI FDK programs. The fact that these children scored significantly lower than children in English FDK on measures of English word identification is not concerning, given that this is a common trend among early FI students (Barik & Swain, 1975, 1975; Cummins, 1998). Furthermore, children in English FDK also scored significantly higher than children from half-day FI kindergarten, demonstrating that attending school full-time in a second language at the kindergarten level does not put children further behind
in the development of their first language word identification skills. The only area in which FI FDK children seemed to be at a disadvantage compared to children from all other kindergarten models was in English word decoding. However, given that their French word decoding skills were not significantly lower than children from half-day FI kindergarten, this is not necessarily an area of concern, rather something that early FI educators should be aware of.

While children from FI FDK programs appear disadvantaged on some measures of English literacy, the opposite trend emerged when examining the French literacy measures, with children from FDK programs demonstrating significantly higher scores in both vocabulary and word identification. These findings highlight the fact that both increased time immersed in the second language, as well as second-language learning through play and exploration, is beneficial for certain aspects of literacy development in the second language. This is an important finding both for parents making decisions about their children’s education, as well as for schools and school boards determining the FI model they will implement.

Finally, this study reveals that there are teaching strategies that are effective for teaching FI kindergarten using a play-based approach. Explicitly teaching French vocabulary at the beginning of the school year, using songs and games to solidify vocabulary understanding, and allowing for long blocks of play and exploration activities so that children can apply their new language skills, are strategies that allow children to successfully develop into students who can speak and understand French and enjoy doing so. Given that there is no specific curriculum for FI kindergarten, this information or these strategies could be included in the “Considerations for Program Planning” of the current FDK curriculum, comparably to the sections related to English Language Learners and children with special education needs. The study demonstrates that special
considerations do need to be made when teaching FI using a play-based approach, and that simply using the English curriculum as a guide is not enough.

6.5 Limitations and suggestions for future research

The fact that each kindergarten model examined in this research was represented in only one school represents an important limitation of the study. While there were at least two classes implementing each kindergarten model, it is still possible that any program effects identified are actually school effects. In particular, given the study’s focus on full-day FI kindergarten, it would have been beneficial to examine the implementation of this program in more than one setting. Additionally, given the geographic area in which the research was carried out, and the fact that it was conducted in a Catholic school board, the participants represented a homogeneous population in terms of race, religion, and home language. Consequently, results from this study may not be generalizable to populations of diverse racial, religious, or linguistic backgrounds. Furthermore, FI FDK may be implemented differently in different contexts, in order to best address the needs of the students. Therefore, future research should examine the outcomes of FI FDK on a larger scale, with more diverse populations, in order to truly understand the child outcomes associated with the program and how it can be implemented most effectively.

Another limitation worth noting is that, while children in the four SK models were being compared in terms of academic outcomes, it cannot be assumed that they were starting out with comparable educational backgrounds. Children in English FDK programs had participated in FDK during their JK year, and their school was implementing the FDK program for the third time. Therefore, both the students and the educators had more experience with the program compared to those in the FI FDK program, which was being implemented for the first time. As well, while children in the FI FDK program were not only new to FDK but also to FI, whereas children from
half-day FI had completed their JK year in FI and therefore had an additional year of French education. Given the small size of the school board in which the research was conducted, and that the FI FDK program was being implemented for the first time in only one school, this limitation reflected the reality of the situation and was unavoidable. However, when possible, future research in this area should control for exposure to French, as well as to full-day programming, in order to ensure that child participants have the same educational background prior to the study.

A final limitation of this study is that it does not examine the long-term effects of the various kindergarten models beyond the beginning of Grade 1, simply as a result of time constraints. Given that one of the goals identified in the FDELK curriculum is “to improve children’s prospects for success in school and in their lives beyond school” (Ontario Ministry of Education, 2010a, p.1), understanding the effects of FDK goes beyond the Grade 1 year. Future research should take on a longitudinal approach in order to understand whether there are lasting effects of each kindergarten model, in terms of academic outcomes, attitudes toward school, social behaviours, and academic goals. For example, it would be interesting to see whether the high attrition rates in FI (Cadez, 2006; Obadia & Theriault, 1995) are impacted when children attend a full-day FI kindergarten program.

6.6 Concluding remarks

The present study provides evidence that play-based learning contributes equally well or better to academic learning than does the traditional half-day kindergarten curriculum. Furthermore, the research suggests that FI can be successfully implemented as a full-day play-based kindergarten program. While child academic outcomes differ slightly from those in other kindergarten models, the benefits balance the shortcomings of the program and children’s French language abilities are stronger in several areas at the end of the kindergarten year. Furthermore,
children enjoy full-day FI kindergarten to the same extent as children in other programs. Although more research is needed to determine whether there are lasting effects of full-day FI kindergarten, this study makes important contributions to the literature on full-day kindergarten programming as well as second-language education. In the context of education in Ontario, this study has particular relevance as school boards decide whether to offer FI at the kindergarten level with the emergence of the new play-based FDK program.
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doi:10.1080/02568548609594910


Appendix A: Consent letter for parents of children in full-day FI kindergarten

[University of Toronto letterhead]

October 11th, 2012

Dear Families,

I am a PhD student at the University of Toronto in the field of Developmental Psychology and Education. I am excited to be working in the Peterborough Victoria Northumberland Clarington Catholic District School Board on a research project called *Full-day French immersion kindergarten: The impact on children's academic and social development*. Your child’s school has been selected for the research because it offers full-day French immersion kindergarten. I am delighted that both the school board and your child’s principal have approved this project. This research study is trying to answer questions about children’s learning and experience in the new full-day French immersion kindergarten program as well as how this program can be delivered most effectively. I am writing to invite you and your child to be a part of this exciting project.

If you agree to participate, please complete the attached questionnaire regarding your child’s kindergarten experience. You will then be asked to complete a second questionnaire in May, which will ask you to reflect on your child’s year in kindergarten. Each questionnaire should take no longer than 15 minutes to complete.

Your child will participate in enjoyable learning activities with a trained graduate student who has experience with young children. The graduate student will come to your child’s classroom at a time that is convenient for the teacher, and work with him/her in a familiar room near the kindergarten classroom. Most children enjoy these activities. However, if your child is shy or unwilling, he/she will not be made to participate. You and your child may decline to answer questions and you may both withdraw from this study at any time, without consequences. The graduate students will work with your child three times: this fall, next spring, and next fall, for a period of approximately one hour each time.

There is a consent form attached to this letter and it must be signed in order for you and for your child to participate in this study. All information will be held strictly confidential and will only be viewed by authorized research personnel. Your name, your child’s name and your school name will NOT be used. We will use numbers to identify people and schools. If you would like to receive a summary of the final research report at the end of our study, please include this request on the consent form.

I sincerely hope that you and your child will participate in this research project. The study will benefit kindergarten students as we investigate and understand the learning that takes
place in the new full-day kindergarten model. Results will be shared with practitioners, policymakers and scholarly audiences. Please read and sign the attached consent form and along with the questionnaire, return it to your child’s kindergarten teacher in the envelope provided.

Please feel free to contact me at any time at 416-934-4510 if you have any questions about the study. You may also contact my supervisor, Dr. Janette Pelletier at 416-934-4506, or the University of Toronto Ethics Review Office about your participation at ethics.review@utoronto.ca, 416-946-3273.

Sincerely,

Nathalie Rothschild, PhD candidate
Dr. Eric Jackman Institute of Child Study
OISE/University of Toronto
416-934-4510
CONSENT FORM

I have read the information regarding the *Full-day French immersion kindergarten: The impact on children’s academic and social development* research project. I hereby give consent for my family (including my child/ren) to participate in the research study led by Nathalie Rothschild, under the supervision of Dr. Janette Pelletier, at the University of Toronto.

____ Yes I give consent for participation in the above-named study

____ Yes I would like to receive a summary of the final research report at the end of the study

Name of child: ____________________________________________

Child birthdate (Day/Month/Year): ___________________________

Name of child’s kindergarten teacher: _______________________

Name of parent (please print): ______________________________

Parent Signature: _________________________________________

Date: ______________________

PLEASE ALSO COMPLETE THE ATTACHED PARENT QUESTIONNAIRE AND RETURN IT TO YOUR CHILD’S TEACHER WITH THIS CONSENT FORM BY WEDNESDAY, OCTOBER 17TH.

THANK YOU!
Full-day French immersion kindergarten: The impact on children’s academic and social development

**Parent Questionnaire**

This questionnaire is for parents with a child in French immersion kindergarten. Questions include information on your personal background, your child’s kindergarten experience, and your own perspective on the kindergarten program. Any information you provide will be treated confidentially.

**Thank you for participating.**

### 1. Contact Information (please print)

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.1 Name of parent:</td>
<td></td>
</tr>
<tr>
<td>1.2 Phone number:</td>
<td></td>
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<tr>
<td>1.3 Mailing address:</td>
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### 2. Child Information

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>2.1 Name of kindergarten child participating in the study:</td>
<td></td>
</tr>
<tr>
<td>2.2 Date of birth of kindergarten child participating in the study:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DAY / MONTH / YEAR</td>
</tr>
<tr>
<td>2.3 Gender of kindergarten child participating in the study – please circle:</td>
<td>Male</td>
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<tr>
<td>2.4 Child’s country of birth:</td>
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<tr>
<td></td>
<td>Canada</td>
</tr>
<tr>
<td></td>
<td>Other country (please specify)</td>
</tr>
</tbody>
</table>

If child was born outside of Canada, how many years has he/she lived in Canada? __________

### 3. Parent Information

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<table>
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<tbody>
<tr>
<td>3.1 Gender (of parent filling out this questionnaire) – please circle:</td>
<td>Male</td>
</tr>
<tr>
<td>3.2 Marital status:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Married</td>
</tr>
<tr>
<td></td>
<td>Single</td>
</tr>
<tr>
<td></td>
<td>Divorced</td>
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<tr>
<td></td>
<td>Common law</td>
</tr>
<tr>
<td></td>
<td>Widow</td>
</tr>
</tbody>
</table>
### 3.3 What is the highest level of education you have completed?
- Have not completed formal schooling
- Completed elementary school
- Completed secondary/high school
- Completed community college or technical college
- Completed undergraduate university degree
- Completed graduate/advanced university degree

### 3.4 What is your current employment status?
- Full-time (30 hours or more per week)
- Part-time
- Parental leave
- Unemployed
- Stay at home parent
- Student

### 3.5 What is your country of birth?
- Canada
- Other country (please specify) ________________________

If you were born outside of Canada, how many years have you lived in Canada?

### 4. Family Information

4.1 Primary language(s) spoken at home:

4.2 Other language(s) spoken by family members:

### 5. School / Child Care Information

5.1 During the week, how is your child cared for when he/she is not in kindergarten?
- Child care / Daycare (located in the child’s school)
- Child care / Daycare (located in a separate facility)
- Child care / Daycare (located in someone’s home)
- Child care (provided by a caregiver in your home)
- Stay at home parent
- Other (please describe):

5.2 Is your child enjoying his/her kindergarten experience?
- My child enjoys kindergarten very much
- My child usually enjoys kindergarten
- My child demonstrates some apprehension towards kindergarten
- My child does not enjoy kindergarten

Please elaborate: ____________________________________________
________________________________________________________________________
________________________________________________________________________
5.3 Does your child enjoy attending school in French?
- My child enjoys attending school in French
- My child usually enjoys attending school in French
- My child demonstrates some apprehension towards attending school in French
- My child does not enjoy attending school in French

Please elaborate: ________________________________________________________________

5.4 Does your child have a positive attitude towards learning French?
- My child has a very positive attitude towards learning French
- My child mostly has a positive attitude towards learning French
- My child has a neutral attitude towards learning French
- My child has a negative attitude towards learning French

Please elaborate: ________________________________________________________________

5.5 Why did you choose to enroll your child in a French immersion kindergarten program (please check all that apply)?
- It is important to me that my child learn an additional language
- It is important to me that my child learn French
- I have an older child in the French immersion program
- My child’s friends were also enrolling in French immersion kindergarten
- I have friends who have had positive experiences with the French immersion program
- The school closest to our house offered the French immersion program
- Other (please describe): _______________________________________________________

5.6 Are there any family members in your home who speak French well enough to communicate with your child in kindergarten (please check all that apply)?
- I speak French
- Another adult *living in our household* speaks French
- Another child *living in our household* speaks French
- No one *in our household* besides our kindergarten child speaks French
- My child spends a significant amount of time in another household with an adult or child who speaks French (please elaborate): ______________________________________________
- Other (please elaborate): ____________________________________________________
5.7 Please describe your experience as a parent with your child’s kindergarten program:

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

Thank you very much for taking the time to fill out this questionnaire. Please return it, along with the signed consent form, to your child’s kindergarten teacher in the envelope provided by WEDNESDAY, OCTOBER 17TH.
Appendix C: Spring questionnaire for parents of children in French immersion kindergarten

**Full-day French immersion kindergarten: The impact on children’s academic and social development**

*Parent Questionnaire – Spring 2013*

This questionnaire is for parents with a child in French immersion kindergarten. Questions include contact information (in the event that it has changed since the fall), your child’s kindergarten experience, and your own perspective on the kindergarten program. Any information you provide will be treated confidentially.

**Thank you for participating.**

### 6. Child Information

1.1 Name of kindergarten child participating in the study:

### 7. Contact Information (please print)

2.1 Name of parent:

2.2 Phone number:

2.3 Mailing address:

### 8. School Information

3.1 Overall, has your child enjoyed his/her kindergarten experience this year?

- My child has enjoyed kindergarten very much
- My child usually enjoyed kindergarten
- My child demonstrated some apprehension towards kindergarten
- My child did not enjoy kindergarten

Please elaborate:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

3.2 What aspects of school did your child talk about the most at home this year?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
### 3.3 Did your child enjoy attending school in French this year?
- My child enjoyed attending school in French
- My child usually enjoyed attending school in French
- My child demonstrated some apprehension towards attending school in French
- My child did not enjoy attending school in French

Please elaborate: ____________________________________________________________

__________________________________________________________________________

### 3.4 Does your child demonstrate a positive attitude towards learning French?
- My child has a very positive attitude towards learning French
- My child mostly has a positive attitude towards learning French
- My child has a neutral attitude towards learning French
- My child has a negative attitude towards learning French

Please elaborate: ____________________________________________________________

__________________________________________________________________________

### 3.5 Will your child continue in the French immersion program at the same school next year?
- Yes
- Unsure
- No

### 3.6 If your child will not be continuing in the French immersion program next year (or if you are unsure), please indicate the reason(s) for this. Please check all that apply.

*$If your child will be continuing in French immersion next year, please skip to the next question.*
- My child will be continuing in the French immersion program at a different school (please elaborate on the reason for a change of schools):
- I would like for my child to continue in the French immersion program, but we are moving and there is no French immersion offered in our new
- I don’t think that the French immersion program is ideal for my child (please elaborate):
- I don’t feel that I can provide enough support for my child in French immersion
- Other (please elaborate): ________________________________
4. Kindergarten Experience

4.1 Please use the space below to describe your child’s overall experience in kindergarten:
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________

4.2 Please use the space below to describe your experience as a parent with your child’s kindergarten program:
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________
_______________________________________________________________________________________

Thank you very much for taking the time to fill out this questionnaire. Please return it to your child’s kindergarten teacher in the envelope provided by MONDAY, JUNE 17TH.
Appendix D: Spring reminder letter for parents

[University of Toronto letterhead]

Dear Families,

I am writing to thank you for your participation in the Kindergarten research study I am conducting in the Peterborough Victoria Northumberland Clarington Catholic District School Board. At the beginning of the school year, you completed a questionnaire related to your child’s kindergarten experience and, as indicated on the original information letter, I am sending home a follow-up questionnaire for you to complete. This questionnaire addresses many of the same questions as the original, but I am interested in collecting more information now that your child has nearly finished their year in kindergarten. It should take no longer than 15 minutes to complete.

Please return the completed questionnaire to your child’s kindergarten teacher in the envelope provided by Monday, June 17th.

A reminder that all information will be held strictly confidential and will only be viewed by authorized research personnel. Your name, your child’s name and your school name will NOT be used.

As always, please feel free to contact me at any time at 416-934-4510 if you have any questions about the study. You may also contact my supervisor, Dr. Janette Pelletier at 416-934-4506, or the University of Toronto Ethics Review Office about your participation at ethics.review@utoronto.ca, 416-946-3273.

Thank you again for your participation!

Sincerely,

Nathalie Rothschild, PhD candidate
Dr. Eric Jackman Institute of Child Study
OISE/University of Toronto
416-934-4510
Appendix E: Educator consent form

[University of Toronto letterhead]

May 14th 2013

Dear Kindergarten Teacher / Early Childhood Educator,

I am a doctoral student at the University of Toronto in the field of Developmental Psychology and Education. I am excited to be working in the Peterborough Victoria Northumberland Clarington Catholic District School Board on a research project called *Full-day French immersion kindergarten: The impact on children’s academic and social development*. This research study is trying to answer questions about child outcomes in the new full-day French immersion kindergarten program as well as how this program can be delivered most effectively.

I am writing to ask you to participate in the research because you are an important member of the early learning team and because I am interested in gathering information about the educators’ perspectives regarding the new full-day kindergarten model.

If you agree to participate in this study, please complete the attached questionnaire, which focuses mainly on your views about the full-day kindergarten program as well as your experiences teaching at the kindergarten level. The questionnaire should take no longer than 20 minutes to complete.

You may also be asked to participate in a short interview, at a time that is convenient for you (ideally sometime the week of May 27). During this interview, you will be invited to talk about your kindergarten program, using your weekly and/or daily plans as guidelines, as well as your learning goals for your students and their progress over the course of the year.

For both the questionnaire and the interview, you may decline to answer any questions. You may also withdraw from this study at any time, without consequences.

There is a consent form attached to this letter and it must be signed in order for you to participate in this study. All information will be held strictly confidential and will only be viewed by authorized research personnel. While it is possible that you or your school may be identified based on the questionnaire you fill out, your name and the name of your school will NOT be used. All names will be replaced with numbers to identify people and schools.

Thank you for your consideration in participating in this research project. The study will benefit schools, educators, and kindergarten students as we investigate and understand
the learning that takes place in the new full-day kindergarten model. Results will be
shared with practitioners, policymakers and scholarly audiences. Please read and sign the
attached consent form and I will come pick it up from you the week of May 21st.

Please feel free to contact me at any time at 416-934-4510 if you have any questions
about the study. You may also contact my supervisor, Dr. Janette Pelletier at 416-934-
4506, or the University of Toronto Ethics Review Office about your participation at
ethics.review@utoronto.ca, 416-946-3273.

Sincerely,

Nathalie Rothschild, PhD candidate
Dr. Eric Jackman Institute of Child Study, OISE/University of Toronto
416-934-4510
CONSENT FORM

I have read the information regarding the Full-day French immersion kindergarten: The impact on children’s academic and social development research project. I hereby give consent to participate in the research study led by Nathalie Rothschild, under the supervision of Dr. Janette Pelletier, at the University of Toronto.

You may consent to both components of the study or simply the questionnaire portion.

___ Yes I give consent for participation in the questionnaire portion of the above-named study

___ Yes I give consent to be contacted to participate in an interview for the above-named study (if you check this part, please include an email address where you can be reached to set up an interview).

Email address (only for the interview component):
____________________________________________________

Name: ________________________________________________

Signature: ____________________________________________

Date: ________________________________________________

School: ______________________________________________

Position (please circle): KINDERGARTEN TEACHER   EARLY CHILDHOOD EDUCATOR

THANK YOU!
Appendix F: Questionnaire for educators in full-day French immersion kindergarten classrooms

**Full-day French immersion kindergarten: The impact on children’s academic and social development**

**Educator Questionnaire**

This questionnaire is for educators in full-day French immersion kindergarten classrooms. Questions include information on your personal background and teaching experience and your perspectives on the full-day French immersion kindergarten program. Any information you provide will be treated confidentially.

Thank you for participating.

### 1. Background

1.1 Gender – please circle: Male Female

1.2 Current Position – please circle: Kindergarten teacher Early childhood educator

1.3 Age:
- Under 20
- 20-24
- 25-29
- 30-34
- 35-39
- 40-44
- 45-49
- 50-54
- 55 and over

1.4 In years and months, how long have you held your current position?

       _______years and _______months

1.5 What is the highest level of education you have completed?
- Have not completed formal schooling
- Completed elementary school
- Completed secondary/high school
- Completed community college or technical college
- Completed undergraduate university degree
- Completed graduate/advanced university degree

1.6 How many years in total have you worked in your field?
- Less than one year
- 1-3 years
- 3-5 years
- 5-10 years
- 10-15 years
- More than 15 years
# 2. French immersion

## 2.1 How long have you worked in a French immersion *kindergarten* setting?
- This is my first year in a French immersion kindergarten setting
- 1-2 years
- 3-5 years
- 5-10 years
- 10-15 years
- More than 15 years

## 2.2 Please describe if/how your experience teaching full-day French immersion kindergarten differs from the half-time French immersion kindergarten program (if this is your first year in a French immersion kindergarten classroom, you do not need to answer this question).

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## 2.3 How long have you worked in a French immersion setting (kindergarten or otherwise)?
- This is my first year in a French immersion setting
- 1-2 years
- 3-5 years
- 5-10 years
- 10-15 years
- More than 15 years

## 2.4 Please list your previous experiences in French immersion settings (kindergarten classrooms, primary/junior/senior grade levels, special education, etc.). If this is your first year in a French immersion setting, you do not need to answer this question.

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2.5 How comfortable are you working in a French immersion environment in terms of your own French language abilities?

- Extremely comfortable – French is my first language
- Extremely comfortable – I am completely fluent in French
- Very comfortable – my French language abilities are more than adequate for working in a French immersion kindergarten classroom
- Somewhat comfortable – I sometimes worry that my French language abilities are not adequate for working in a French immersion kindergarten classroom
- Uncomfortable – I don’t believe my French language abilities are adequate for working in a French immersion kindergarten classroom

3. Full-day kindergarten

3.1 Was any professional development and/or support provided relating to the implementation of full-day kindergarten model at your school (please circle)?

- Yes
- No

3.2 If there was professional development and/or support provided, please provide a brief description.

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3.3 If there was professional development and/or support provided, was it practical and valuable?

- The professional development and/or support provided was practical and valuable
- The professional development and/or support provided was somewhat practical and valuable
- The professional development and/or support provided was not practical or valuable

Please elaborate: ____________________
_________________________________________________________________________________________
_________________________________________________________________________________________

3.4. If there was professional development and/or support provided, was it sufficient?

- The professional development and/or support provided was entirely sufficient
- The professional development and/or support provided was somewhat sufficient, but additional opportunities would have been beneficial
- The professional development and/or support provided was not at all sufficient. Additional opportunities were necessary

Please elaborate: ____________________
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<table>
<thead>
<tr>
<th>4. Full-day French immersion kindergarten</th>
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<tr>
<td>4.1 Are there any challenges you can identify regarding the implementation and delivery of full-day French immersion kindergarten using the new play-based model? If yes, please describe below.</td>
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| 4.2 Please use this section to describe your thoughts and opinions regarding the implementation and delivery of full-day French immersion kindergarten. |
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Thank you very much for taking the time to fill out this questionnaire!
Full-day French immersion kindergarten: The impact on children’s academic and social development

Educator Questionnaire

This questionnaire is for educators in half-time French immersion kindergarten classrooms. Questions include information on your personal background and teaching experience and your perspectives on the full-day French immersion kindergarten program. Any information you provide will be treated confidentially.

Thank you for participating.

1. Background

1.1 Gender – please circle: Male Female

1.2. Current Position:

1.3 Age:
- Under 20
- 20-24
- 25-29
- 30-34
- 35-39
- 40-44
- 45-49
- 50-54
- 55 and over

1.4 In years and months, how long have you held your current position?

_______ years and ______ months

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- Have not completed formal schooling
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1.6 How many years in total have you worked in your field?
- Less than one year
- 1-3 years
- 3-5 years
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- 10-15 years
- More than 15 years
### 2. French immersion

**2.1 How long have you worked in a French immersion kindergarten setting?**
- This is my first year in a French immersion kindergarten setting
- 1-2 years
- 3-5 years
- 5-10 years
- 10-15 years
- More than 15 years

**2.2 How long have you worked in a French immersion setting (kindergarten or otherwise)?**
- This is my first year in a French immersion setting
- 1-2 years
- 3-5 years
- 5-10 years
- 10-15 years
- More than 15 years

**2.3 Please list your previous experiences in French immersion settings (kindergarten classrooms, primary/junior/senior grade levels, special education, etc.). If this is your first year in a French immersion setting, you do not need to answer this question.**

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<th>Experience 1</th>
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- Uncomfortable – I don’t believe my French language abilities are adequate for working in a French immersion kindergarten classroom
### 3. Full-day French immersion kindergarten

3.1 Are there any challenges you can identify regarding the implementation and delivery of full-day French immersion kindergarten using the new play-based model? If yes, please describe below.

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3.2 Please use this section to describe your thoughts and opinions regarding the implementation and delivery of full-day French immersion kindergarten.

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Thank you very much for taking the time to fill out this questionnaire!
October 2013

Dear Families,

I am writing again this year to thank you for your participation in the Kindergarten research study I am conducting in the Peterborough Victoria Northumberland Clarington Catholic District School Board. This letter is just a reminder that I would like to work with your child again this year now that he/she is in Grade 1, as outlined in the consent letter that you signed last year.

Again this year (in November/December) your child will work with a trained graduate student who has experience with young children. The graduate student will come to your child’s classroom at a time that is convenient for the teacher, and work with him/her in a familiar room near the classroom. Most children enjoy these activities. However, if your child is shy or unwilling, he/she will not be made to participate.

A reminder that all information will be held strictly confidential and will only be viewed by authorized research personnel. Your name, your child’s name and your school name will NOT be used.

As always, please feel free to contact me at any time at 416-934-4510 if you have any questions about the study. You may also contact my supervisor, Dr. Janette Pelletier at 416-934-4506, or the University of Toronto Ethics Review Office about your participation at ethics.review@utoronto.ca, 416-946-3273.

I also want to take this opportunity to let you know that the research is going very well and that I appreciate your continued support.

Thank you again for your participation!

Sincerely,

Nathalie Rothschild, PhD candidate
Dr. Eric Jackman Institute of Child Study
OISE/University of Toronto
416-934-4510
Appendix I: Scoring for Early Print Task


Number and word writing task example item: Write “Daddy has three hockey sticks”.

**Writing**
0=No attempt
1=Scribbling (random marks)
2=Drawing (drawing does not resemble object)
3=Drawing (drawing does resemble object)
4=Scribbling-like script (scribbling has writing pattern)
5=Letter-like forms (marks resemble letters but not identifiable)
6=Letter use (not correct letters, not correct order, may include other marks)
7=First letter in some words correct
8=First letter in all words correct
9=Consonant use (some consonants within words, overrides 7&8)
10=Phonologically related (most words readable, some not readable)
11=Phonologically related (words all readable)
12=All words spelled correctly

**Number representation**
0=Number is not represented
1=Number is represented as a drawing
2=Number is represented as a numeral
3=Number is represented in print

**Number correct**
0=No number represented
1=Incorrect number represented
2=Correct number represented

**Colour**
0=Target colour not represented
1=Target colour represented in incorrect location (i.e., the whole task is written in the target colour)
2=Colour represented in correct location (i.e., the crayons are drawn in blue/apples drawn in red)
3=Attempt to write colour word
Appendix J: Scoring for The Kindergarten Drawing Task

**General Notes:**
- The coding should be done based on the child’s actual drawing; however, to better understand a child’s drawings, it is helpful to refer to the attached script.

1. **Number of People**
   - Count number of people the child drew

2. **Teacher represented in drawing**
   - 0 = No
   - 1 = Yes

3. **Number of Objects**
   - Count number of objects the child drew
   - DO NOT count people as objects.
   - Grass and sky do not count as objects, but clouds, sun and tufts of grass would.

4. **Emotion Portrayed** (on people’s faces)
   - 0 = No emotion
   - 1 = Positive emotion
   - 2 = Negative emotion
   - 3 = Mix of positive/negative

5. **Drawing Complexity**
   - 0 = No reference line(s) (mental or drawn)
   - 1 = Reference line(s) (mental or drawn) present with floating elements (objects/people)
   - 2 = One reference line (mental or drawn) with integrated elements
   - 3 = Two reference lines (mental or drawn) with integrated elements
   - 4 = Two reference lines (mental or drawn) and elements fully integrated

*PLEASE SEE EXAMPLES ATTACHED AND READ EXPLANATIONS BELOW*

- If there are multiple context drawn (i.e. classroom, teacher reading to students on carpet, people seated around a table, etc.) score to the highest level of complexity displayed.
- A reference line exists when a child used an object or a line to be a reference for another object/person. It gets at how the child’s ability to place objects/people with respect to other objects/people in the drawing. Some children will draw actual lines others will use a “mental” reference line.
- An example of a reference line could be the horizon line (including the bottom of box), a person, a chair, a table.
- Some object may seem floating, but if at least one of them in integrated with a reference line, then it counts as integrated.
  - **Score of 1**: A table with objects beside it when they should be on top of it (like pencils, or paper).
  - **Score of 2**: Table with objects on it would be a 2. A score of 2 (one reference line with integrated characters) can be given if, despite lack of explicit reference line drawn, all objects/people are integrated on a plane. E.g. child has drawn people playing soccer and although this scene is not
lined up with bottom of page and ground has not been drawn, all players, nets, and the soccer ball are aligned with one another. This is evidence of a mental reference line being used.

- **Score of 3**: A drawing with objects placed on a table and then a person sitting on a chair would be a 3 (one reference line being the table, the other the chair; but the child did not integrate the two reference lines). This is often given when the child has drawn the chair and/or person far away from the table, or the child is standing on the chair (vs. integrated and therefore, sitting). This score would also be given if the teacher reading from a chair and children are standing or just their heads have been drawn.

- **Score of 4**: Objects on a table with people sitting around the table would be a 4. The person is sitting on the chair (and integrated properly; e.g. with arms on table, legs bent while sitting) and the chair is integrated with the table (appropriate height, perspective). Sometimes, integration is evidenced through occlusion: if the child has drawn a bird’s-eye view, often the legs are ‘covered’ by the table. In an outdoor setting, a score of 4 could be given if the two reference lines (sky and ground/background) meet (i.e. that the sky has been coloured to meet the ground). In an indoor setting, a score of 4 could be given if the child has drawn a classroom setting that involves accurate perspective of the walls meeting the ground/carpet, including a blackboard and/or clock on the wall, or the children seated on the carpet and the teacher reading from a chair.

6. **Relevance of Drawing to Task**: “Draw yourself doing something ‘here’.”
   - 0 = Irrelevant (did not draw self or something school related)
   - 1 = Partially relevant (drew self or something school related)
   - 2 = Relevant (drew self and something school related)
     - If it is hard to make out what is in the drawing, it is helpful to refer to the script.

7. **Any form of writing/print in the drawing**
   - 0=No
   - 1=Yes
     - A child’s name does not count

8. **Colour**
   - Count number of different colours the child used
   - Pencil is not counted as a colour unless used as grey to colour something in.
     - If a child uses same colour but from a different crayon (e.g. with slightly different hues), it is counted as a different colour.

9. **Number of Face Details (people only)**
   - Count the number of details on and surrounding the face (i.e. pair of eyes, pair of eyebrows, eyelashes, nose, mouth, teeth, blush, hair, pair of ears would each be counted as one feature).
   - If there is more than one face present in the drawing, code for the total number of details drawn across all faces. (i.e. if one face had a nose and the other two did not you would count for the nose in your tally, and if another one had ears you would also include that in your tally of totally face details).
     - Accessories such as glasses, hair ties, earrings, and hats are not included (see clothing).
10. Number of Body Details (people only)
   - Count the number of body details. These include head, neck, torso, pair of arms, a pair of hands, pair of legs and pair of feet.
   - Coding examples:
     - Score: 3
       - head, arms, legs
     - Score: 4
       - head, neck
     - Score: 4
       - head, neck
     - Score: 5
       - head, torso, arms, legs
     - Score: 6
       - head, neck, torso, arms, legs
     - Score: 7
       - head, neck, torso, arms, hands, legs

11. Setting: Outdoors
   - 0 = No
   - 1 = Yes

12. Academic
   - 0 = No
   - 1 = Yes
   - The traditional subjects: math, science, language and literacy.

13. Play
   - 0 = No
   - 1 = Yes
   - The word “play” must be explicitly stated in script.

14. Work
   - 0 = No
   - 1 = Yes
   - The word “work” must be explicitly stated in script.

15. Physical Activity (gross motor)
   - 0 = No/Unclear
   - 1 = Yes
   - Examples: running around, climbing, playing sports.
   - Not examples: playing with blocks, playing with sand (indoors and outdoors).

16. Use of French (in script or drawing)
   - 0=N/A (not in immersion)
   - 1=No
   - 2=Yes
Appendix K: Scoring for the English Child Interview

**Question 1:** Tell me about your day at school, from the time you get to school in the morning until you leave school at the end of the day.

*Use of French*
0=No
1=Yes
2=N/A

*Script word count*
Number of words

*Play mentioned*
0=No
1=Yes

*Academic mentioned (literacy, math, science, arts, phys ed)*
0=No
1=Yes

**Question 2:** Do you like kindergarten?
0=No
1=Yes
2=I don’t know

**Question 3:** What is your favourite thing about kindergarten
1=French
2=Academic
3=Play (inside)
4=Recess/play outside
5=Friends
6=Learn
7=Work
8=Classroom routines besides play/academic/work (i.e., circle time, calendar, etc.)
9=Teacher
10=I don’t know
11=Other

*Use of French*
0=No
1=Yes
2=N/A
**Question 4: What is important about kindergarten?**
1=French
2=Academic
3=Play (inside)
4=Recess/play outside
5=Friends
6=Learn
7=Work
8=Classroom routines besides play/academic/work (i.e., circle time, calendar, etc.)
9=Ready for grade 1
10=Teacher
11=Rules (i.e., listening to teachers, lining up)
12=I don’t know
13=Other

*Use of French*
0=No
1=Yes
2=N/A

**Question 5: What do your teachers do?**
1=Teach
2=Work
3=Help
4=Play
5=Tell us what to do
6=Prep work (i.e., they get stuff ready)
7=Take care of/look after kids
8=Maintain order/make sure people follow rules
9=I don’t know
10=Other

*Use of French*
0=No
1=Yes
2=N/A

**Question 6: Do you like going to school in French?**
0=No
1=Yes
2=I don’t know
3=N/A
**Why?**
1= I like French/French is fun
2=Important to speak French
3=Important to speak another language (does not specify French)
4=Others don’t understand what I’m saying (i.e., parents or siblings)
5=Can speak to people in French (at school, travelling, family)
6=I don’t know/Nothing
7=Other
8=I like English better
9=Too hard
10=Boring
11=I don’t like French
12=I don’t understand what my teacher/people are saying
13=N/A
Appendix L: Adapted French Peabody Picture Vocabulary Test

(Adapted from the PPVT-III, form B)

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## Appendix M: Adapted French Word Identification

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<td>2. bonjour</td>
<td>C</td>
<td>26. devoir</td>
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<td>3. avec</td>
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<td>27. journée</td>
<td>C</td>
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<td>28. faute</td>
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<td>29. lecture</td>
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<td>36. demander</td>
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<td>38. fin</td>
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<td>C</td>
<td>39. nous</td>
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C = correct
NR = no response

Szucs 2003
Appendix N: Adapted French Word Decoding

"I want to you read some words that are not real words. I want you to tell me how they sound in French"  
(Ceiling = 6 consecutive errors)

sample:  pais

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Geva 1995
Appendix O: Scoring for the French Child Interview

**Question 1: Qu’est-ce que tu fais à l’école?**

1=French  
2=Academic  
3=Play (inside)  
4= Recess/play outside  
5=Friends  
6=Learn  
7=Work  
8=Classroom routines besides play/academic/work (i.e., circle time, calendar, etc.)  
9=Teacher  
10=Rules (i.e., listening to teachers, lining up)  
11=I don’t know  
12=Other

*Script word count*  
Number of words

*Use of French*  
0=None  
1=Some  
2=All

**Question 2: Qu’est-ce que tu aimes faire à l’école?**

1=French  
2=Academic  
3=Play (inside)  
4= Recess/play outside  
5=Friends  
6=Learn  
7=Work  
8=Classroom routines besides play/academic/work (i.e., circle time, calendar, etc.)  
9=Teacher  
10=I don’t know  
11=Other

*Script word count*  
Number of words

*Use of French*  
0=None  
1=Some  
2=All
Question 3: Aimes-tu parler en français?
0=No
1=Yes

*Script word count*
Number of words

*Use of French*
0=None
1=Some
2=All
Appendix P: Scoring for Parent Questionnaires

Parent Questionnaire Coding – Fall 2012

**English and FI questions**

Child country of birth  
0 = Canada  
1 = Other

Parent gender  
0 = Male  
1 = Female

Marital status  
0 = Married  
1 = Single  
2 = Divorced  
3 = Common law  
4 = Widow

Parent education  
0 = Not completed formal schooling  
1 = Elementary school  
2 = Secondary school  
3 = Community/technical college  
4 = Undergraduate  
5 = Graduate

Employment status  
0 = Full-time  
1 = Part-time  
2 = Parental leave  
3 = Unemployed  
4 = Stay at home parent  
5 = Student

Parent country of birth  
0 = Canada  
1 = Other
Primary language spoken at home
0 = English
1 = English and other
2 = Other

Child care outside of kindergarten
0 = Child care in school
1 = Child care in a facility outside of school
2 = Child care in someone’s home
3 = Child care provided by caregiver in home
4 = Stay at home parent
5 = Other

Enjoys kindergarten
0 = Enjoys very much
1 = Usually enjoys
2 = Some apprehension
3 = Does not enjoy kindergarten

**FI only questions**

Enjoys attending school in French
0 = Enjoys French
1 = Usually enjoys French
2 = Some apprehension
3 = Does not enjoy French

Positive attitude towards learning French
0 = Very positive attitude
1 = Mostly positive attitude
2 = Neutral attitude
3 = Negative attitude

Why did you enroll your child in French immersion
0 = Important that child learn additional language (French)
1 = Logistics (older child in program, closest school is French immersion)
2 = Friends in program/with positive experiences
3 = Other

Any others in household who speak French
0 = Yes, another adult only
1 = Yes, another child only
2 = Yes, another adult and child
3 = Someone outside household with whom child spends significant amount of time
4 = No one in household
Parent Questionnaire Coding – Spring 2013

**English and FI questions**

Has child enjoyed kindergarten experience
0 = Enjoyed very much
1 = Usually enjoyed
2 = Some apprehension
3 = Did not enjoy

Aspects talked about most
0 = Play
1 = Friends
2 = Learning
3 = Academics
4 = Teacher
5 = French
6 = Other classroom activities
7 = Nothing/I forget

**FI only questions**

Enjoyed attending school in French
0 = Enjoys French
1 = Usually enjoys French
2 = Some apprehension
3 = Does not enjoy French

Positive attitude towards learning French
0 = Very positive attitude
1 = Mostly positive attitude
2 = Neutral attitude
3 = Negative attitude
Appendix Q: Qualitative themes from questionnaires of parents with children in full-day French immersion kindergarten

Parent questionnaires – Elaborations

Fall

5.2 – Enjoying kindergarten?
Apprehension – not eager to go, expresses interest in staying home and demonstrates symptoms of anxiety before and after attending

Enjoys – My son struggled in JK and often said he wanted to stay home and was often mixed up between ‘school day’ and ‘home day’. The routine of regular school Mon-Fri has made life much easier for him and our whole family.

Enjoys – Loves learning new French words and socializing with other kids

Enjoys – Enjoys displaying artwork and school work on fridge. Was nervous about FI initially.

Enjoys – comes home singing French songs and is now interested in French books/stories

Enjoys – Enjoys social interaction and physical activities; is least enthusiastic about academic learning

Enjoys – learning and playing with friends

Enjoys – very eager to learn new things and share at home – especially the French

Enjoys – enjoys attending school and is interested in playing with his friends and learning new things

Enjoys – enjoys the idea of teaching us her new French vocabulary and gestures and trying to ‘trick’ us

Enjoys – enjoys going and shares some songs and French that he has learned in the day

Enjoys – seems to enjoy it although doesn’t give much detail regarding his activities or academics; right now he’s very happy to see his school friends 5 days a week

Enjoys – loves teacher and friends, although she is a little apprehensive when I am leaving her in the morning, but because of SK but just being separated from me
5.3 – **Enjoying French?**

Enjoys – only positive thing I hear about school is the new French words he’s learned; he loves to be able to teach and ‘quiz’ others; finds it novel to have an ability many others, especially elders, do not

Enjoys – His older brother is in FI and he enjoys speaking with his brothers

Enjoys – Loves to practice her ‘new words’ with parents and grandparents

Usually enjoys – Likes to share with us the new words she learns in French

Usually enjoys – Gets tired and the additional effort to listen/comprehend French is exhausting

Enjoys – picking it up quickly and enjoys teaching us new words and songs

Enjoys – excited to be learning a new language

Enjoys – although tired from the demands of all-day learning, she is always happy to go

Enjoys – very excited to tell me new French words he has learned

Enjoys – comes home very proud of the new words he has learned; it helps that his big sister (gr. 2) is also in French and both myself and my husband speak French (FI graduates)

Enjoys – loves coming home each day to tell us all the French she has learned – she often asks us for a drink in French or to let us know she is going to the washroom in French

5.4 – **Attitude towards French**

Mostly positive – nervous she won’t learn as easily as her sister – sister learns things very quickly

Mostly positive – wants to speak French with dad and brother

Positive – Trying out new French words and likes to speak to younger siblings in French; often asks for the French words for everyday objects

Positive – teaches us the new words every night

Positive – very excited to learn more French and to be able to speak it
5.5 – Other reasons for FI
I feel immersion classes are typically better behaved, stronger academically and have families who place strong emphasis on education. I wanted my son with these types of people.

Grandmother is French

Important for jobs in the future

Father speaks French

Suggested for child because of success with English language in JK

Potential future benefits French will have in her life – travel, work, etc.
Spring

3.1 – Enjoyed kindergarten?
Usually enjoyed – often found things they were doing were things she already knew

Usually enjoyed – days when he wanted to stay home or said school was boring because it was always the same

Enjoyed – always eager to attend school and discuss what he was learning

Enjoyed – picked up French very quickly; enjoyed playing with his friends and participating in classroom activities

Enjoyed – got to meet new friends and got to meet “Dimoitou”

Usually enjoyed – sometimes she was too tired after 5 days at school

Enjoyed – loves going to school although he doesn’t talk a lot about the learning aspect

Some apprehension – difficult time all year with initial separation in the morning – but once at school she would have a great time

3.2 – Aspects most often discussed
Playing with her friends and the new things learned
Playing with her friends, making artwork, building things, playing store
Recess, friends, new words he learned
New friends and activities – loved to display artwork and homework on fridge
Class activities, experiments, discovery learning
New friends, new experiences
Playing soccer at recess, play time in the classroom, little books that helped him learn letters, arts and crafts
Dimoitou – the French speaking puppet who plays tricks on the class
Friends, music, learning French words, being able to talk to her older brother in French
Friends, different activities they play at recess
Teachers – talked a lot about them not being there when there were supplies, kids in her class, rarely talked about what she was doing as far as learning at home
3.3 – Enjoyed French
Usually enjoyed Fr – At the beginning of the year, she wished she understood more of what the teacher was saying, but as time went on, she seemed to notice less and less that it was all in French

Enjoyed Fr – Loves speaking French, thinks it’s special

Enjoyed Fr – Liked learning French and we practiced together nightly

Enjoyed – She enjoyed speaking a new language and now likes speaking to us at home in some French

Enjoyed – excited to be learning ‘new words’

Enjoyed – loved learning French and we are proud of how well she learned the language

Enjoyed – loves speaking French

Enjoyed – loved learning a new language (same as her francophone cousins)

Enjoyed – I speak French and she enjoyed being able to participate in talking/understanding

Enjoyed – gained more confidence in his French over the course of the year

Enjoyed – never really talked about French at home

3.4 – Attitude towards French
Mostly positive attitude – if she feels it is too difficult, she gets frustrated; couldn’t always understand what was being said

Positive – Thinks it is neat to be learning new words; understands that learning a new language will help in life

Positive – always speaking French and the new songs he has learned

Positive – attempted new reading tasks, spoke with us a little bit at home

Positive – enjoyed demonstrating his reading ability in French and seemed quite proud of his knowledge
Appendix R: Educator interview questions

These questions will guide the interview with the educators.

**Program questions**

1. Thank you for bringing your weekly and/or daily plans. Can you walk me through them so I can get an understanding of what a typical week might look like, and then what a typical day might look like? Please include any details that you feel are relevant or important to understanding your program.

2. Again using the day plan, can you talk about various teaching and/or learning strategies that are occurring throughout different points during the day?

**Student questions**

Can you tell me a little bit about your learning goals for your students the course of the year? How do you see your students experiencing the kindergarten program? Can you discuss their progress over the course of the year?

**Other**

Thank you so much for taking the time to discuss both your kindergarten program and your students. Is there anything else you feel is important to add, relating to your kindergarten program, full-day kindergarten, or otherwise?