



READINESS TO LEARN IN MINORITY FRANCOPHONE COMMUNITIES

PROGRAM EFFECTS ON CHILDREN AND THEIR PARENTS



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Introduction

This summary reports on the **effects of a preschool program on children and their parents** participating in the *Readiness to Learn in Minority Francophone Communities project*¹ (*Readiness to Learn project*). This demonstration project was part of the Government of Canada's 2003–2008 Action Plan for Official Languages and was continued under the 2008–2013 Roadmap for Canada's Linguistic Duality. Funded by Employment and Social Development Canada (ESDC), the Social Research and Demonstration Corporation (SRDC) was hired to implement, manage, collect and analyze the project data.

The project piloted a preschool program that combined a child care component developed specifically to meet the needs of Francophone children in minority settings with a family literacy component targeting the parents of these children. The tested program is designed to influence the main settings — daycare and home — in which children develop so as to optimize

Note: The content of this executive summary originates from four reports:

- *Readiness to Learn in Minority Francophone Communities: Reference Report* (2014)
- *Readiness to Learn in Minority Francophone Communities: Report of Findings from the Preschool Phase* (2014)
- *Readiness to Learn in Minority Francophone Communities: Report of Program Effects in Grade 1* (2014)
- *Readiness to Learn in Minority Francophone Communities: Report of Program Effects in Grade 2* (2014)

A copy of these reports can be accessed at www.srdc.org.

their overall learnings with a focus on the development of French language skills and identity as well as their sense of belonging to the Francophone community. The project additionally aimed to help them acquire skills associated with academic achievement.



The contribution of the *Readiness to Learn project*

The project's main contribution is the explicit recognition of the importance of a minority linguistic context on the development of linguistic and identity-related dimensions in young children. Past research findings highlight that children's exposure to French in a number of different settings strengthens their identification with and sense of belonging to the Francophone community. ***The reality of a minority context means that children are exposed to two different cultures at a time when their cultural identity and language skills are developing.*** Moreover, sooner or later these children must learn the majority language (i.e., English), in addition to their mother tongue, to ensure their full integration into society.

¹ Formerly known as the Child Care Pilot Project.

Few Francophone children living in minority environments meet the conditions required to develop additive bilingualism.² For bilingualism to be additive, a minimal threshold of exposure to, or use of the mother tongue must be exceeded. For various reasons, the minimal threshold required is higher when the mother tongue is a minority language. The dual-component preschool program was meant to be a concrete response to this reality.

This program's innovation lies in its targeting of the two main environments — daycare and home — most likely to influence the learnings of young children, its emphasis on exposure to French in these environments, and its focus on providing high-quality content compliant with best practices in the areas of early childhood and family literacy.

The preschool program

The piloted preschool program combines a child care component with a family literacy component. The programming of the child care component was adapted for children aged three from the Franco-Saskatchewanian junior kindergarten program developed by the Ministry of Education of Saskatchewan (2001) for four-year-olds. The program offered considers child development as a holistic process; a number of developmental dimensions are therefore targeted by way of a play-based approach.

A set of 10 family literacy workshops offered to parents during the first year of program delivery complemented the child care component. The programming of the family literacy component was developed specifically for the pilot project by the firm Eduk, in collaboration with ESDC and SRDC. The program was designed to meet the

objectives of the *Readiness to Learn project* and the special needs of Francophones living in linguistic minority communities. Its programming embodies the 10 best practices recommended by the Centre for Family Literacy (2002), a well-recognized organization in the field of family literacy. Of note, the delivery of the program delivery incorporated the recommendations of community representatives experienced in offering services and programs to young francophone families as well as findings of studies examining the implementation of family literacy workshops.



How does the program differ from other preschool programs?

The piloted preschool program distinguishes itself by offering a dual-component program as a means to influence the daycare setting and the family setting. The end goal was to have the work of early childhood educators consolidated by the work of parents in the home and vice versa. The many benefits of programs that modify both the child's daycare and home environments were established in several studies of other "vulnerable" populations and young students. It is

² This form of bilingualism refers to individuals who master a second language without incurring any costs in terms their cultural identity and their mother tongue.

believed that the maximization of these program effects depends on parents and educators adopting the same approaches with the child.

With these findings in mind, the decision was taken early in the project to harmonize the Daycare Program and the Family Literacy Program in terms of values, fundamental principles and approaches. The Daycare Program focuses on the francization and early literacy of preschoolers (including the subthemes of reading and writing). The Family Literacy Program completes the Daycare Program with exchanges that raise parents' awareness of their role as their child's first educator and of strategies that optimize the development of language and literacy skills. It also aims to equip parents so that they may support their child's development in terms of the Francophone culture and identity, whether they live in a unilingual, bilingual, trilingual or multicultural family context.

Lastly, the program differentiates itself by the quality of its educational content centered on activities which encourage children to communicate and enrich their French vocabulary. A detailed description of each program component and their respective modalities is provided in the *Readiness to Learn in Minority Francophone Communities: Program Implementation Executive Summary*.



What did we want to learn?

The *Readiness to Learn* project took place in two phases. The first phase covered the preschool years and concerned school readiness. We sought to answer the following question:

- Does the new preschool program, which includes a child care component and a family literacy component, have a significant impact on children's language skills, Francophone cultural identity and school readiness beyond the development that would take place in its absence, and independently of any other external factors that may come into play?

The second phase explored the program effects on predictors of academic achievement. We examined the following questions:

- Does the new preschool program better prepare Francophone children raised in minority settings to succeed in tasks deemed essential to academic achievement, such as reading, numeracy and attention skills?
- Do these children demonstrate better language skills compared to children not exposed to the preschool program?

Next, we wanted to establish if the family literacy workshops influenced parents' attitudes and behaviours, in particular:

- Are they better equipped to support their child's development in terms of French language, identity and culture?
- Are they more aware of their role as their child's first educator and of the specificities of life in a linguistic minority setting?
- Are they more aware of the importance of the complementary of parent-educator roles in supporting their child's learning?

In the hopes of furthering the learnings achieved in this study, two final questions were explored:

- Do the effects of the preschool program on the development of children vary in function of their level of exposure to French in the home?
- Do the effects of the Family Literacy program on parents translate to their children?

Participants

The preschool program was delivered in September 2007 to a first cohort of participants from six minority Francophone communities across the following three provinces:

- Cornwall, Durham and Orléans in Ontario;
- Edmundston and Saint-John in New Brunswick; and
- Edmonton in Alberta.

In September 2008, a second cohort of participants was recruited in the communities of Cornwall and Orléans.

Parents and children were recruited based on specific eligibility criteria:

- one of the child's parent had to be an "*ayant droit*,"³ although children of *non-ayants droit* were eligible to participate if their first official language was French;
- the child was born between January 1, 2004, and January 31, 2005, for the first cohort, and in 2005 for the second cohort; and
- the parent intended to send his or her child to a French-language school.

This last criterion aimed to exclude children not part of the target population — i.e., children who

would eventually attend English schools. This criteria was in fact rarely applied since parents of such young children generally had not yet decided on a school at the time they were recruited into the study.



How was the program evaluated?

Children were followed over a period of four years: from the age of three to seven — that is, from preschool to the start of grade 2. The first assessment of children's developmental dimensions (that is, at baseline) took place at the beginning of the preschool program. Thereafter, child assessments were done every four months over the first two years of the project for a total of seven assessments. In the last two years of the project, child assessments were done annually. Parents were surveyed in conjunction with child assessments.

The program was evaluated by comparing the developmental trajectory of children participating in the preschool program with that of similar groups of children not participating in the program.

³ As defined in Article 23 of the *Canadian Charter of Rights and Freedoms*.

Main analyses

In technical terms, the program was evaluated by way of a longitudinal study using a quasi-experimental design with comparison groups. Three groups of participants were assembled for the purposes of the study:

1. a **Program Daycare group** consisting of children enrolled in a French-language daycare that offers the new preschool program;
2. a **Comparison Daycare group**, consisting of children enrolled in a French-language daycare not offering the new program; and
3. an **Informal Care group** consisting of children whose daytime care was provided at home or at an unregulated family daycare.

The first comparison group took into account the influence of formal daycare settings on child development, which was a treatment in itself. The second comparison group sought to account for the influence of an informal childcare environment on child development, especially with respect to the French language. A comparison of skills acquired by children in these three groups during program delivery and over the following two years served to uncover program effects.

Study sample

At the time of enrolment, the project involved 356 children from 352 families (see Table 1). There were 176 boys and 180 girls aged 38 months on average. More than half of the mothers (62%) and fathers (55%) spoke only French with their child. Most children were from Francophone endogamous homes (49%), followed by exogamous homes (39%).^{4 5}

⁴ Type of homes or household type was determined by combining the mother and the father's first official language spoken (FOLS).

Table 1 Number of participants in each community

Community	Enrollment n (%)	At 24 ms n (%)	At 48 ms n (%)
Cornwall 1 st cohort	72 (20%)	68 (20%)	68 (20%)
Cornwall 2 nd cohort	46 (13%)	45 (13%)	45 (13%)
Durham	42 (12%)	35 (10%)	34 (10%)
Edmundston	85 (24%)	83 (25%)	83 (25%)
Orleans 1 st cohort	55 (15%)	54 (16%)	53 (16%)
Orleans 2 nd cohort	56 (16%)	53 (16%)	53 (16%)
Total	356 (100%)	338 (100%)	336 (100%)

At 48 months into the project, the sample comprised 336 children from 332 families. It included 165 boys and 171 girls. The children's average age was 86 months, or 7 years and 2 months. Almost half of the mothers (49%) and fathers (47%) spoke only French to their child. Most children were from Francophone endogamous homes (50%), followed by exogamous homes (39%). One change in particular was noted: an increase in the proportion of exogamous households in parallel with the disappearance of Anglophone endogamous households by the end of the project. This change was associated with an increased use of French and English spoken by the mother to the child in Anglophone endogamous households over time, in lieu of only speaking English. This observation will be revisited in the conclusion.

At project onset, the **number of children per study group** was 110 children in the Program Daycare group, 135 children in the Comparison

⁵ Francophone endogamous homes were those where both parents spoke French. Exogamous homes were those where one parent reported French as his FOLS and the other, English.

Daycare group and 111 children in the Informal Care group. These numbers decreased at 48 months into the project to 95, 130 and 111 for the Program Daycare group, the Comparison Daycare group and the Informal Care group, respectively.

From a comparison of sample size at the beginning and at the end of the study, we note an excellent participation retention rate in the *Readiness to Learn project*, with only 38 withdrawals (10.7%) since the project's inception in 2007.



Assessing children's development

Over the four years of the project, different measuring tools were used to monitor child development on several key dimensions of school readiness and skills associated with academic achievement. The changes in assessment mechanisms were necessary because some tools became less appropriate to detect program effects as children aged (e.g., name of all alphabet letters in grade 2).

The main tool for measuring children's **school readiness** was "*l'Évaluation de la petite enfance – Appréciation directe (ÉPE-AD)*", an early French

version of the Early Years Evaluation – Direct Assessment (EYE-DA, Willms, 2007). ÉPE-AD is a multidimensional measure of, amongst others, Awareness of Self, Cognitive Skills, and Communication Skills.

In winter 2009, SRDC restructured the ÉPE-AD to create two new vocabulary subscales in order to capture subtle differences in children's language skills. The first subscale measured expressive vocabulary (Expressive Vocabulary ÉPE-AD) while the second measured receptive vocabulary (Receptive Vocabulary ÉPE-AD). Finally, two other vocabulary scales were added to the array: the EOWPVT-F and the ÉVIP-R. Table 2 summarizes the constructs, dimensions measured, their associated definition and measuring tools.

As for **academic achievement**, it is typically established using direct and indirect measures administered starting in third grade.⁶ Since there was no intention to track the children from the *Readiness to Learn project* after the beginning of grade 2, we planned to infer the longer term effects of the program using predictors of academic achievement measured at the beginning of grades one and two (basically, the equivalent of an assessment at the end of kindergarten and of grade 1). Of note, past longitudinal studies consistently show that the key predictors of academic achievement remain the same in grades one and two. Furthermore, they underline a strong correlation between children's performance in grade 2 and their performance in grade 3.

Examined predictors of academic achievement included language and reading skills, numeracy skills, and attention skills. The attention skills can be conceptualized by certain cognitive skills known as executive functions. These include

⁶ According to some developmental models, it is not possible to diagnose a learning problem until grade 3, which is when a gap can be detected between a child's IQ and academic achievement.

three types of highly interrelated skills: (1) *self-control* (e.g., resisting temptations, impulses and distractions), (2) *working memory* (e.g., ability to retain oral information in memory and then to manipulate that information), and (3) *cognitive flexibility* (e.g., ability to adjust to changing requirements). Complex tasks generally require all three aspects of executive functions. In fact, these cognitive skills assist children in being disciplined in the classroom and focusing their attention. The above measures of predictors of academic achievement have all been calibrated and validated with young Francophone children enrolled in grades 1 and 2. Table 3 summarizes

the constructs, dimensions measured, and associated definition and measuring tools.

To better distinguish the effects of the program, the impact analyses controlled for other factors known to influence school readiness and academic achievement. For example, the analyses controlled for the socio-demographic characteristics of children and their parents, family processes (e.g., parenting style), languages spoken in the home, social capital and the cultural groups with which the parents identified.

Table 2 School Readiness: Measured Construct, Developmental Dimension, Definition and Measuring Tool

Measured Construct	Developmental Dimension	Definition	Measuring Tool
School Readiness	Self-awareness	Measures the degree to which the child can recognize and identify the elements in his or her environment (e.g., name colours, parts of the body, his or her date of birth, etc.).	<i>Évaluation de la petite enfance – Appréciation directe (ÉPE-AD)</i>
	Cognitive Skills	Measures various logical-mathematical aspects (e.g., count, group various objects, distinguish shape sizes, etc.). The child is also asked to name a few letters of the alphabet, to identify their sound, and read eight words.	
	Communication Skills	Measures the child's ability to communicate and understand.	
Language Skills	Expressive Vocabulary ÉPE-AD	Measures the child's ability to say the word associated with the picture he or she is shown.	ÉPE-AD scales restructured by SRDC in winter 2009
	Receptive Vocabulary ÉPE-AD	Measures the child's capacity to identify the picture associated with the word said aloud by an evaluator.	
	Expressive Vocabulary (EOWPVT-F)	Standardized measure of the child's ability to say the word associated with the picture he or she is shown.	<i>Épreuve de dénomination de Gardner</i> (1979), the validated and standardized French translation of the Expressive One-Word Picture Vocabulary Test (EOWPVT)
	Receptive Vocabulary (ÉVIP-R)	Standardized measure of the child's capacity to identify the picture associated with the word said aloud by an evaluator.	<i>Échelle de vocabulaire en images Peabody — Révisée, Dunn et al., 1993</i> , the validated French translation of the Peabody Picture Vocabulary Test – Revised (PPVT-R).

Table 3 Predictors of Academic Achievement: Measured Construct, Developmental Dimension, Definition and Measuring Tool

Measured Construct	Developmental Dimension	Definition	Measuring Tool
Language Skills	Word Reasoning	Measures the child's ability to understand sentences and his or her ability to use verbal information to guess a target word.	Subscale of the Wechsler Intelligence Scale for Children adapted for Francophone Canadians (Franco-Ontarians, Quebecois), WISC-IV ^{CDN-F} , Wechsler, 2005
	Verbal Fluency	The test consists of presenting the child with a category (for example, fruit) and asking him or her to name as many examples as possible in the given category within a specified time (for example, apple, orange, etc.).	Subscale of the <i>Batterie de tests pour l'évaluation multidimensionnelle de la lecture en français (BÉMÉL)</i> , Cormier, Desrochers & Sénéchal, 2006
	Frequency of child's use of French	Measure of the languages the child normally uses to communicate with his or her mother, father, friends and siblings at home and outside of the home.	Measure developed by SRDC specifically for the purposes of this project
	Ability to Communicate in French	Measures the frequency with which the child succeeds in communicating clearly and in understanding directions or the thread of a conversation with ease.	Communication Scale, Cycle 7 NLSCY, Statistic Canada & HRSDC, 2006-2007
	Alphabet knowledge		Letter Names and Sounds, Desrochers & Thompson, undated
Reading Skills	Reading Words	Measures children's capacity to read up to 36 one- or two-syllable Simple Words or 40 one to six-syllable Complex Words presented in increasing order of difficulty for young Francophone Canadians (from Ontario and Quebec).	Subscales of the BÉMÉL, Cormier et al., 2006
	Reading Sentences	Measures children's capacity to correctly pronounce words.	Subscale of the BÉMÉL, Cormier et al., 2006
	Comprehension of Written Sentences	The child is presented a series of sentences in which a word is missing. The test measures the child's capacity to choose the right word to complete the sentence.	Subscale of the BÉMÉL, Cormier et al., 2006
Numeracy Skills	Numeracy	Measures the child's capacity to count, add and compare.	SRDC's French translation of the Number Knowledge Test, Case & Okamoto, 1994
Executive functions	Work Memory, Inhibition/Flexibility	Measures the child's ability to retain oral information in memory and then to manipulate that information. In a first set of questions, the child simply repeats a series of numbers as heard (Forward Digit Span subscale). In a second set of questions, the child repeats a sequence of numbers in reverse order (Backward Digit Span subscale).	Subscales of the WISC-IV ^{CDN-F} , Wechsler, 2005
		Measures the child's capacity to retain actions in memory and then to repeat the sequence of actions while following a rule. For example, the evaluator performs an action (knocks at the table or taps the table with an open hand) and the child must perform the opposite action.	NEPSY ⁷ Knock-Tap Test, Korkman et al., 1998

⁷ NEPSY is a named formed from the spelling of the words "neurology" and "psychology".

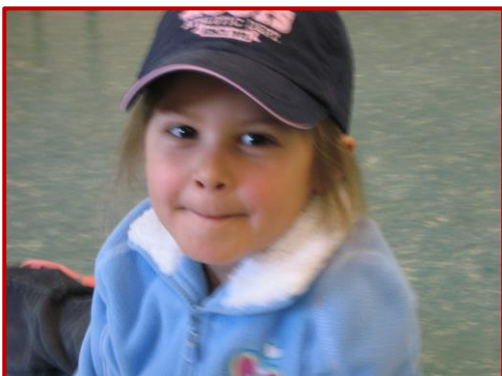
Program effect on children

The use of multiple measuring tools to evaluate school readiness and the predictors of academic achievement makes it impossible to easily summarize the findings of the project. The results outlined in the figures contained in this summary are therefore reported on in terms of differences between groups in standard deviation units (see box to the right for an explanation).

Preschool phase

Year 1 of the project: At baseline, children in the Program Daycare group demonstrated weaker cognitive and language skills compared to children of both comparison groups (see Figure 1). This situation reflected the greater number of households in the program group where English was the language most commonly used.

These differences in language skills disappeared early in the first year of the program. By the fourth month in the project, program effects were noted for several key dimensions of school readiness in the Program Daycare group relative to peers in both comparison groups. These effects were strongest in comparison with the Comparison Daycare group.⁸



Understanding standardized differences

The results reported in the figures represent the “standard” difference in the developmental trajectory of children across study groups. This difference reflects the size of the program’s effect on children’s development. Following Cohen (1988), we call this statistic d . Cohen provides conventional benchmarks for interpreting the magnitude of the effects expressed in a standardized scale. A standardized difference between groups of $d = 0.20$ is considered small, a difference of $d = 0.50$ is considered medium, and a difference of $d = 0.80$ is considered large.

One useful way to understand the magnitude of the effect of an early childhood intervention is to compare it to the effect of normal development. In other words, we must ask: how does the size of the effect compare with gains normally observed over one year of development? For example, the expected average gain in literacy and numeracy development for the period spanning kindergarten to Grade 1 is approximately $d = 1.33$. Stated otherwise, a program effect of $d = 1.33$ represents one year of development and an effect of 0.67 represents a developmental gain of roughly six months.

Interpreting Figures

Each bar represents the standardized effect size of comparisons between the Daycare Program group and the Comparison Daycare group for each indicator retained. A bar above zero represents an effect in favour of the Program Daycare group.

⁸ Only the effects reflecting differences between the Daycare Program group and the Daycare Comparison group are reported in the figures and tables. Results of comparisons between the Daycare Program group and the Informal Care group are found in the integral research reports.

Figure 1 Standardized Differences in Developmental Trajectories of the Daycare Program Group vs the Comparison Daycare group: Year 1 of the Project

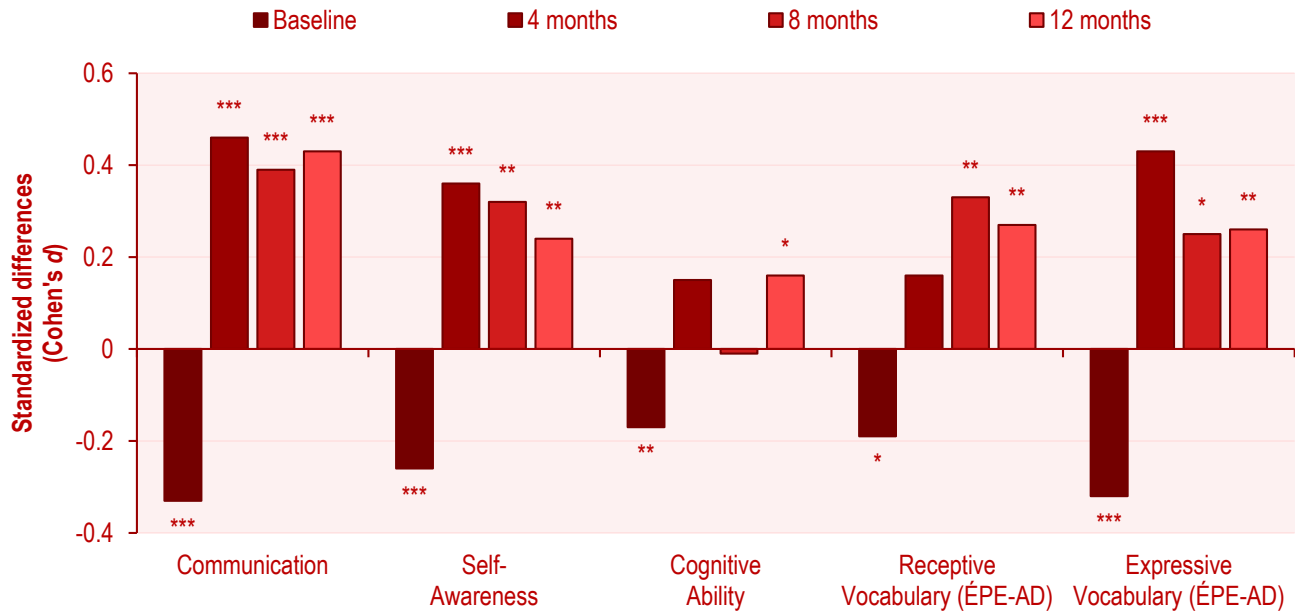
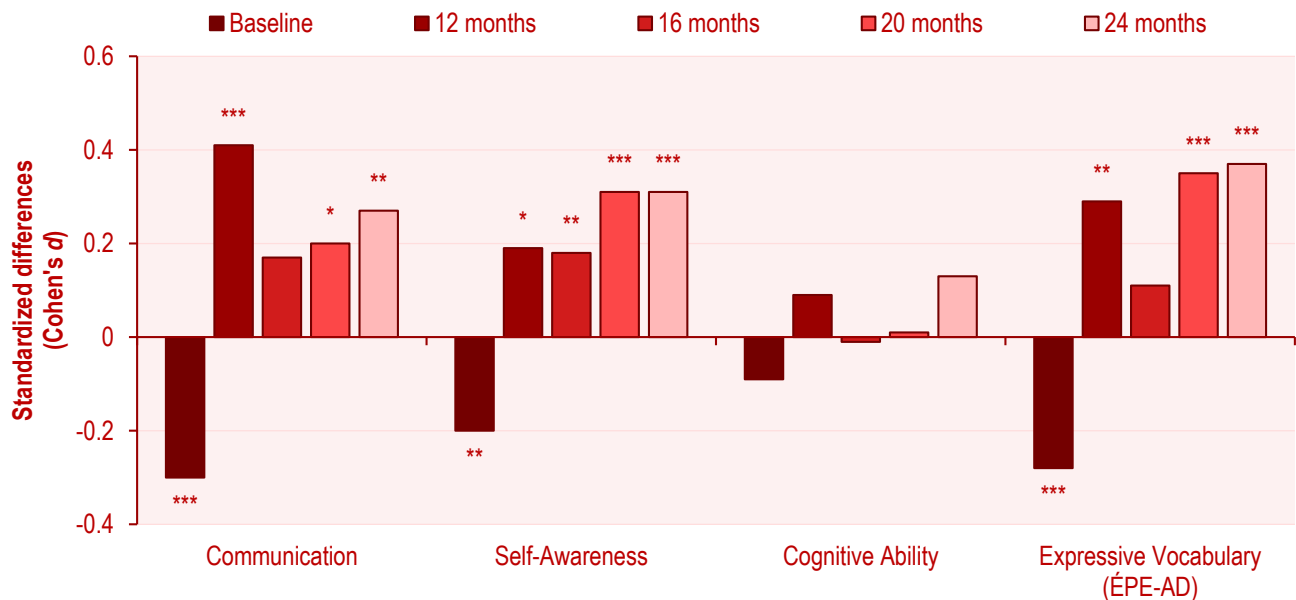


Figure 2 Standardized Differences in Developmental Trajectories of the Daycare Program Group vs the Comparison Daycare Group: Year 2 of the Project



Year 2 of the project: Program effects translated into accelerated growth in language skills for children in the Program Daycare group versus children in the comparison groups. Specifically, children exposed to the program showed significant gains in Communication, Self-awareness, and Expressive Vocabulary ÉPE-AD when they begin junior kindergarten (12 months into the project). The size of these gains is equivalent to an accelerated growth of 2.3 to 3.9 months for Program Daycare children compared to that of children in the two comparison groups. These effects are comparable in size one year later (see Figure 2 above), when children start senior kindergarten (24 months into the project). The positive program effects on language skills are reproduced with the ÉVIP-R (not reported in Figure 2). The observed effect is equivalent to a leap of about six months in vocabulary growth based on ÉVIP-R standards.

Surprisingly, no program effect was observed on children's Expressive Vocabulary measured with the EOWPVT-F (not reported in Figure 2). The size of the observed effect nevertheless suggests an accelerated growth of Expressive Vocabulary of about six months for children exposed to the program relative to children of both comparison groups based on ÉVIP-R standards. A favourable effect for the program group would no doubt have been observed in a larger sample of children.

While observed gains in language skills were positive and relatively constant over the two years of program delivery, no stable program effects were observed from one assessment to the next for cognitive skills (i.e., prenumeracy and preliteracy skills).

The credibility of the findings was enhanced by findings from additional analyses associating the dosage and implementation fidelity to the observed gains in children exposed to the program rather than to other factors. In particular, the results suggested that about 25 to 30 hours of daycare per week were necessary to achieve a significant program effect. Further, the positive effect increased for children who spend more time at daycare (about 40 hours per week).



School phase

Overall, the positive effects of the program continued to be observed on the language skills of children exposed to the program relative to their peers in both comparison groups during the two years following the end of the program (see Figure 3). In contrast, the program effects on reading and numeracy skills as well as on the development of executive functions were less clear.

Figure 3 Standardized Differences in Developmental Trajectories of the Daycare Program Group vs the Comparison Daycare Group: Year 3 of the Project

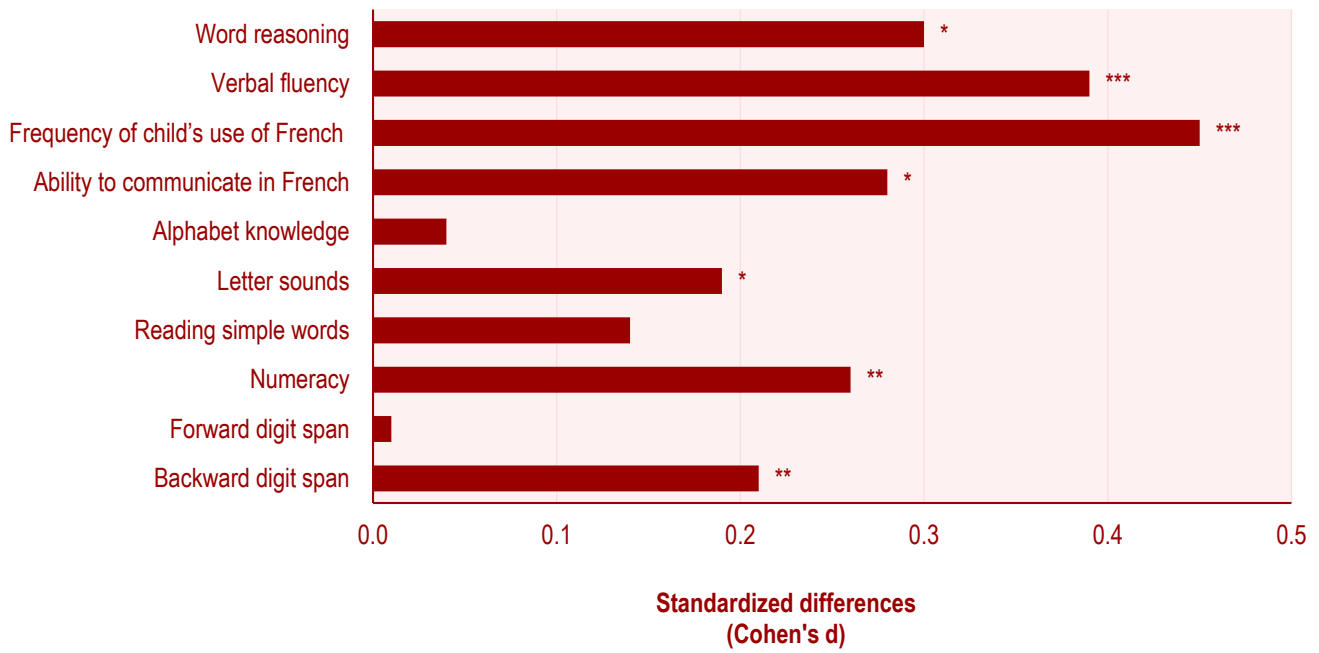
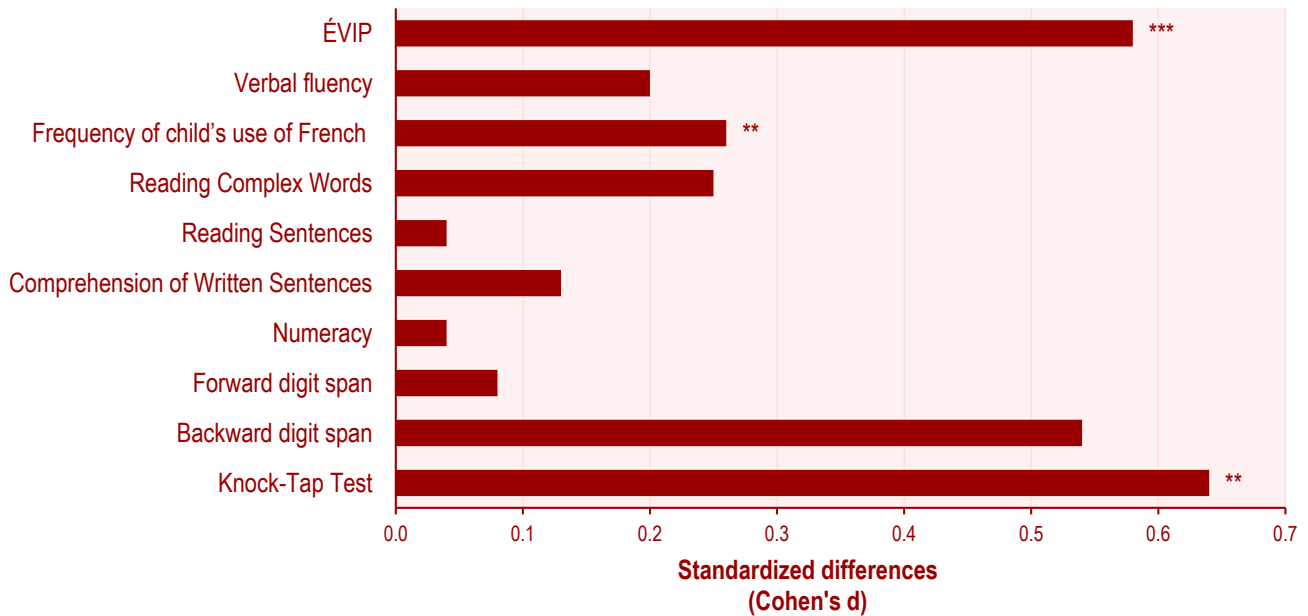


Figure 4 Standardized Differences in Developmental Trajectories of the Daycare Program Group vs the Comparison Daycare Group: Year 4 of the Project



Year 3 of the project: A positive program effect on language skills was observed at the start of grade 1 for all three measures (see Figure 3 above). A favourable effect for the program group was also observed for Word Reasoning, though only relative to the Comparison Daycare group. The average size of the observed effects corresponded to an acceleration in growth of about three to five and half months amongst Program Daycare children relative to children in both comparison groups.

In general, children exposed to the program performed as well or slightly better than their peers in both comparison groups in reading and in terms of executive functions. Lastly, a positive program effect on children's numeracy skills was noted, though only relative to the Comparison Daycare group.

Year 4 of the project: Overall, we observe the end of the acceleration in the development of children exposed to the program. A positive program effect continued to be seen on the Receptive Vocabulary (ÉVIP-R) of children exposed to the program relative to those in both comparison groups (see Figure 4 above). The observed gain represented an accelerated growth of about three to four months. Moreover, Daycare Program children used more often French with others (according to parents) though this was



found only in relation to the Comparison Daycare group.

Program Daycare children performed as well as their counterparts of both comparison groups in reading and numeracy. Likewise, findings suggest children performed similarly in terms of their executive functions across all the three groups.

Differentiated program effect

The research identifies two types of bilingualism: additive and subtractive. While additive bilingualism is associated with the development of executive functions, and these in turn to academic success, subtractive bilingualism is linked to a delay in the age-appropriate development of the child's cognitive skills or language skills in the mother tongue. Several young Francophones living in minority communities are at risk of developing a subtractive bilingualism because their level of exposure or use of the minority language does not reach the required minimum threshold of exposure or use of the French language for them to develop an additive form of bilingualism.

It is in this context that we examined the possibility that children exposed to languages other than French (usually English) benefit most from the piloted preschool program relative to children exposed only to French in the home.

Two hypotheses were put forward:

- Children from households characterized by a low exposure to French would mostly benefit from the program in terms of language skills development.
- Children from households characterized by high exposure to French would mainly benefit from the program in their cognitive development.

These hypotheses were investigated by first dividing children in each of the study group based

on their level of exposure to French — that is: low or high exposure to French in the home at the onset of project (i.e., at baseline). We then examined the developmental trajectory of each subgroup, once again comparing Program Daycare children to their peers in both comparison groups. For instance, the development of children of the subgroup Daycare Program and high exposure to French in the home at baseline was compared to the development of children in the subgroup Comparison Daycare and high exposure to French in the home at baseline.

Preschool phase

An acceleration in the development in language skills throughout the preschool period was evident for children of the Daycare Program group (see Table 4). This accelerated growth was

found for both subgroups: low and high exposure to French at baseline.

Overall, these gains appeared early in the subgroup of children from households characterized by a low exposure to French and were maintained up to 20 months into the project. The same pattern was found for the subgroup of children of households with high exposure to French though this trend persisted until the start of kindergarten.

Differentiated effects of the program were observed in terms of cognitive skills, in favour of the subgroup of children exposed to the program and living in households characterized by high exposure to French. Recall that these cognitive skills relate to various logical-mathematical aspects, that is, a set of complex skills whose learning rests on the mastery of the language of instruction. We will return to this issue in the conclusion.

Table 4 Program Effects at the Preschool Phase on Children from Households with Low and High Exposure to French (Daycare Program Group vs Daycare Comparison Group)

Dimensions	Household with Low Exposure to French			Household with High Exposure to French		
	4 months	12 months	24 months	4 months	12 months	24 months
Communication Skills	▲	▲	—	▲	▲	▲
Awareness of Self	▲	▲	—	▲	—	▲
Cognitive Skills	—	—	—	▲	▲	▲
Expressive Vocabulary ÉPE-AD	▲	▲	▲	▲	—	▲
Expressive Vocabulary EOWPVT-F		▲			—	
Receptive Vocabulary ÉVIP-R			▲			—

Legend: shaded cells indicate the dimension was not measured; ▲ = a significant gain in favour of the Daycare Program group vs the Comparison Daycare group; — = no significant differences between the two groups found.

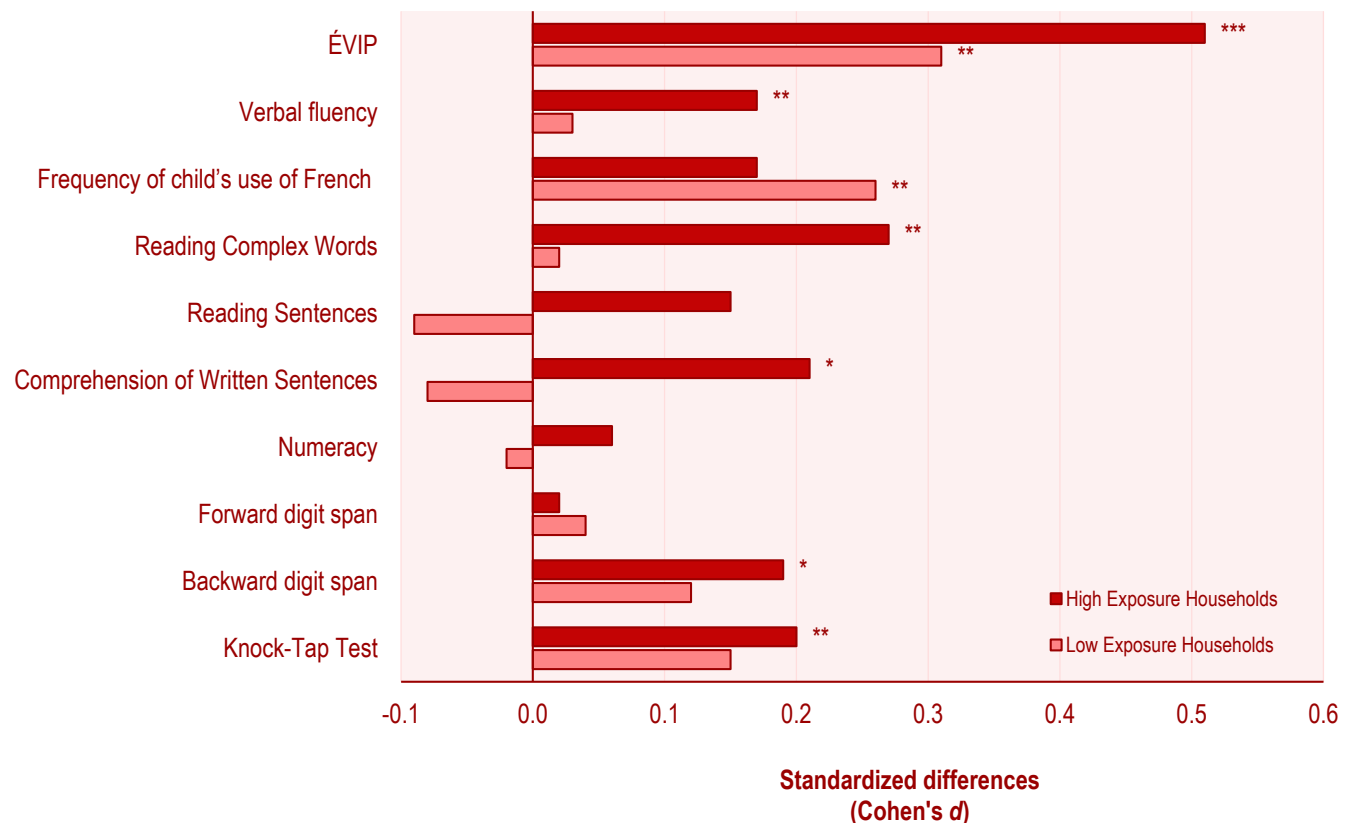
School phase

At 36 and 48 months into the project, the differentiated effects of the program intensify. While children from households with low exposure to French generally perform on par with their counterparts of both comparison groups, the emerging picture for children from households with high exposure to French differs. Moreover, the pattern of results is similar at 36 and 48 months into the project. For the sake of simplicity, we have elected to present only the findings at 48 months in this summary.

Figure 5 shows gains in favour of the Daycare Program subgroup from households with low exposure to French, although these gains are limited to Receptive Vocabulary and a greater use of French by the child with others.

In contrast, a sustained acceleration in the development of language and reading skills was found for Daycare Program children from households with high exposure to French. Gains in numeracy skills in favour of the program group appeared only at 36 months (not shown in Figure 5). The emerging picture was less consistent in terms of the development of executive functions.

Figure 5 Differentiated Program Effects for Children with Low or High Exposure to French in the Household (Daycare Program Group vs Daycare Comparison Group) at 48 Months into the Project



Program effects on parents

The effect of the Family Literacy program on parents' frequency of doing literacy activities with their children emerged early in the first year of the project, only to gradually diminish over the following three years of project.

We also noted a greater use of French during literacy activities (relative to the Comparison Daycare group only) and this effect was still present at 48 months into the project. Likewise, we found mothers used French more often to communicate with their children (relative to the Comparison Daycare group only) at 36 months. This effect at 36 months coincided with children entering grade 1, a time when they were learning to read and parents were called upon to engage in their children's learning process.



Do the program effects on parents translate to their children?

During the first phase, changes in parent attitudes were found to be partially responsible for the observed effect on the development of children's cognitive skills. During the second phase, there appeared to be an indirect program effect at 36 months into the project on children's language skills. At that time, the emerging picture

suggested that the family literacy component partly explained program effects on the development of children's language skills.

Overall, the effects of the family literacy component were found to be limited to two dimensions, at least based on the variables considered in this study. The pattern of findings suggested that the Daycare Program was a more credible and more important source of the tested program's effect. That said, the quasi-experimental design does not allow us to rule out the possibility that the family literacy workshops are necessary to obtain significant effects from the Daycare Program. However, the unique contribution of the family literacy component may be very small based on past studies. Family literacy programs affect child outcomes, though the effect remains small in size, when parents are given concrete strategies they can use with their children, rather than just general advice. With this project, it appears that the content of the Family Literacy Program was too general to have a significant effect on children's development. In sum, our results are empirically corroborated by the literature, which supports the conclusion that the Daycare Program is the main driver of the reported effects, without dismissing the complementary role of the Family Literacy Program.

Closing thoughts

Overall, examination of children's developmental trajectory suggest a sustained accelerated growth in language skills for children in the Daycare Program group over the four years of the project. Daycare Program children performed as well or better relative to their comparison group counterparts on most of the language skill measures. The program effect on predictors of academic achievement was less marked and appeared to diminish at 48 months. Thus, the

program achieved its main goal of boosting the development of children's French language skills.

The nature of gains depended, however, on the child's exposure to French in the home at project onset. Children from households characterized by low exposure to French showed gains in French language skills in the short-, medium- and longer-term. The same pattern was not seen in the medium- and longer-term for the predictors of academic achievement (i.e., reading and numeracy skills, executive functions). In other words, gains in language skills of these children did not translate to better performance on predictors of academic achievement. That said, children from households with low exposure succeeded just as well as their peers in the Comparison Daycare group on tasks considered essential to academic achievement.

Children from households characterized by high exposure to French benefited more in terms of language skills, in addition to taking full advantage of the program with regards to the majority of skills associated with academic performance. Gains in language skills and in the growth of predictors of academic achievement appeared early in the program and continued to grow at an accelerated rate during the second phase (e.g., language and reading skills, executive functions). Together, these findings suggest that preschool children living mostly in French (i.e., at home, daycare and school) are well-positioned to learn and benefit from activities offered by the piloted program and continue to develop more quickly during the first few school years compared to children in both comparison groups.

Together, these findings suggest that the children in the Program Daycare group are less likely to develop subtractive bilingualism than the children in the Comparison Daycare group. These findings are consistent with the results of prior studies demonstrating that mastery of a language

fosters the development of additive bilingualism and, by extension, facilitates the development of executive functions.

Program effects on parents are promising at least in the short- and medium- terms. At 36 months into the project, the program's effect on parents translated into greater exposure to French in the households of Daycare Program children. This timeframe corresponded with children's entry into grade 1. These program effects on parental behaviour coincided with a program effect on children's language skills. Unfortunately, the Family Literacy program effect disappeared at 48 months into the project. This timeframe corresponded to a drop in overall children's performance, particularly for children from households with low exposure to French at the onset of the project.

These results underline the necessity of continuing to encourage parents to support the development of their children's language skills with the goal of helping their children master the language of instruction or at a minimum, maintain the gains achieved in a preschool such as the one offered the *Readiness to Learn project*.



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