

The Ontario Summer Literacy Learning Project 2010

Council of Ontario Directors of Education

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Purpose and Objectives



Summer Literacy Learning Program
...Literacy Achievement

"By the end of the program the students considered themselves 'readers'".

"...children came to realize that 'they love stories and books'....I consider this a great success."

Teachers

Purpose and Objectives

Definitions

The Ontario Summer Literacy Learning Project 2010 includes both the research study component and the Summer Literacy Learning Program.

Whereas, the Summer Literacy Learning Program is specific to the organization, implementation and instruction of primary students who participated in organized summer literacy learning classes.

Purpose

The purpose of the Ontario Summer Literacy Learning Project 2010 was to:

- (a) Offer a Summer Literacy Learning Program in a number of Ontario Boards for primary students; and
- (b) Examine and determine the effects of a Summer Literacy Learning Program on the reading levels of invited primary students

Objectives

The objectives of the 2010 Summer Literacy Learning Project were to:

- ✓ Provide a meaningful, interesting and quality Summer Literacy Learning Program for primary pupils who are most in need of this opportunity; and
- ✓ Assist selected Boards, based on EQAO data, to increase student achievement and close achievement gaps; and
- ✓ Monitor and evaluate individual student literacy growth over the course of the summer programs; and
- ✓ Determine if participation in Summer Literacy Learning Program reduced summer learning loss and narrowed literacy gaps for students; and
- ✓ Identify the components of successful Summer Literacy Learning Programs and share best practices; and
- ✓ Report the research and program findings to the Student Achievement Division; and
- ✓ Make recommendations and outline considerations for future implementation of a summer literacy learning project in 2011.

Background



Summer Literacy Learning Program
...Literacy Achievement

“We had parents tell us the kids were up and ready 1 hour before school even began. They were loving learning. I was also thrilled to see some of the kids jump 2 levels during reading. The parents said they were so excited to read at home.”

Teacher

Background

Within the educational community, both provincially and nationally, there has been widespread interest regarding the impact of summer learning loss on student achievement, and closing the gap for students with lower levels of literacy skill development. An initial scan of the literature on summer learning loss would indicate that to date there have been few, if any, major Canadian research studies to determine the variables that support summer learning and the degree to which students benefit through participation in a teacher instructed summer literacy program.

In the spring of 2010, the Council of Ontario Directors of Education (“CODE”) was contacted by the Chief Student Achievement Officer and Assistant Deputy Minister, Student Achievement Division to coordinate the organization of a Summer Literacy Learning Program for grades 1, 2 and 3 students in invited Boards.

This innovative project was funded and supported by the Ministry of Education Student Achievement Division as a research based initiative to support primary school students to maintain and/or increase their literacy achievement levels and to extend the summer learning pilot project completed by Dr. Scott Davies (McMaster University) and Dr. Janice Aurini (University of Waterloo) in conjunction with the Renfrew District School Board and the Renfrew Catholic District School Board during the summer of 2009.

A number of Ontario Boards were approached by CODE to take part in the summer literacy learning project and organize summer learning classes for up to 20 students in each class. In total 28 Boards participated in both the research study and the implementation of a Summer Literacy Learning Program. A wide range of Boards comprised the project base, including 24 English Language Boards and 4 French Language Boards, throughout the province, representing rural and urban communities, northern jurisdictions and larger, more diverse areas.

The following criteria were considered to be significant when determining the Boards to be recommended for the 2010 Summer Literacy Learning Program for Primary Level Students:

- ✓ Student achievement levels based on EQAO scores.
- ✓ Communities with economic and social challenges.
- ✓ Service to a range of both urban and rural Boards.
- ✓ Challenges Boards experience in increasing student achievement levels.
- ✓ Communities with diverse populations.

Also considered but not required were:

- ✓ Evidence of prior involvement in primary summer school programs.
- ✓ Capacity of Boards to extend/expand existing primary Summer Literacy Learning Programs.

The Student Achievement Division through CODE provided funding to Boards to operate a Summer Literacy Learning Program. Allocations were assigned based on the estimated number of primary students in the Board with Boards receiving \$20,000.00 for each class organized to participate in the research study and summer learning program.

Boards were encouraged to invite primary students experiencing achievement gaps, and/or students who may have social and economic challenges to school achievement to participate in a teacher instructed summer literacy program.

The involvement of parents was critical to the success of the 2010 Summer Literacy Learning Program. Boards were to communicate to parents the purpose, expected student outcomes and logistics of the program. Parents were required to complete a survey and commit to regular attendance of their child(ren). Ongoing communication with parents of participating students during the Summer Literacy Learning Program occurred.

Considerable flexibility was provided to Boards in organizing and locating classes. Boards were expected, however, to:

- Organize programs with no fewer than 15 students per site for a minimum of 2 weeks.
- Give preference to qualified teachers who are able to offer a high quality literacy program to grades 1, 2 and 3 students.

While the primary focus in the summer program was to maintain and/or increase literacy skills, Boards were asked as well to provide a portion of the day towards recreational activities focusing on healthy and active living. Boards, in many cases, entered into a partnership with a local not for profit agency or organization (e.g. YMCA, Boys and Girls Club, Municipality etc) to provide a recreation component.

Recognizing the significant impact that teachers and other important adults have on student success and enjoyment in the summer program, it was suggested to Boards that additional adult(s) would be helpful and assist with the program; specifically, Boards could consider a teacher aide, senior secondary school pupil, Faculty of Education or Early Childhood Education student.

There was no additional curriculum provided for the Summer Literacy Learning Program, keeping in mind that a description of a quality literacy program could be found in the Expert Panel Report and Ministry Guides to Effective Literacy Instruction.

The research component and protocol will be more fully outlined in the sections on Primary Findings: What the Research Told Us, and Secondary Findings: What Parents, Teachers, Students and Program Leads Told Us, detailed in Appendices 1 and 2.

When contacting and discussing with Boards the 2010 Summer Literacy Learning Program, it was made clear that the research study was integral to the project and complementary to the program. Boards were informed that the research design included June visits or teleconferences with each participating Board a) to explain the protocols for distributing and collecting parent surveys, b) to review school site records for pupil testing, and c) to discuss parameters for the confidential data base. In July and August, participating Boards were contacted in regards to program characteristics which were used in data analysis. Follow up site visits or teleconferences were conducted. Support was provided as required to participating French Language Boards.

The research study was conducted under the direction of the lead researchers, Drs. Davies and Aurini.

Context: Why Summer Learning Matters



Summer Literacy Learning Program

...Student Engagement, Individual Attention

"I thought it was great for these students to have extra support during the summer and a chance to shine, since they may not in their regular classrooms. This program allows for more structure and a safe positive environment where they are able to socialize and have access to rich reading materials".

Teacher

Context: Why Summer Learning Matters

For decades, researchers in Canada and elsewhere have found persistent disparities in educational success between more advantaged versus less advantaged youth.¹ Studies find that family resources – income, wealth, stability and parental education - are strong predictors of student achievement. In fact, these family resources tend to be better predictors of achievement than school resources, such as spending per student, student-teacher ratios, and physical equipment. Why? Variations in key resources are greater – far greater – among families than among schools. While income, wealth and parental education are highly disparate across households, and appear to have become increasingly disparate in recent years, comparable resources are distributed far more equally among schools. Provincial funding formulas ensure that schools receive largely equal monies to spend on learning resources.

Inequalities in resources can also lead to inequalities in children’s out-of-school learning opportunities. While schools tend to equalize these opportunities, the situation across families and neighbourhoods is different. Research on early development finds that more affluent families tend to offer their children a head start in learning. Canadian studies using the Early Development Instrument (EDI) show substantial disparities in children’s cognitive and communication skills by kindergarten.² Young children with more educated parents tend to hear a greater variety and amount of spoken words than do children with less educated parents. This early advantage helps nurture their oral communication skills and set their foundations for early literacy. Indeed, compared to their advantaged counterparts, children raised in poverty are less likely to be “school ready”, as indicated by their vocabulary, communication, numeracy skills, and attention spans.

As children develop beyond kindergarten into the primary grades, other family activities tend to exacerbate these disparities. Highly educated and affluent parents are more likely to adopt a hands-on “concerted cultivation” form of parenting that engages children in a variety of activities that promote language use, reading and counting.³ These parents spend more time reading to their children and participating in other learning oriented activities. These parents are better positioned to meet school expectations like ensuring their children are well-rested, well-fed, and ready to learn. They have more resources to help their children with homework are better equipped to combat any learning difficulties that their children may encounter. By grade 3 or 4, children who have not yet mastered basic literacy

¹ For a sampling of this literature, see Albright and Conley (2004), Davies and Guppy (2010), Sweet and Anisef (2005), Willms (2002; 2009).

² See ongoing research by Magdalena Janus, Scott Davies, Eric Duku and their colleagues in Ontario, and Clyde Hertzman and his colleagues in British Columbia. American studies similarly report socioeconomic and racial/ethnic gaps in cognitive skills from the beginning of kindergarten (e.g. Downey et al, 2004; Fryer and Levitt, 2004; Lee and Burkam, 2002). Nobel Laureate James Heckman links disparities in early learning to longer term inequalities in educational attainment, and to eventual disparities in employment and income among adults.

³ For some academic studies, see Lareau (2003) and Dumais (2006). See also Statistics Canada (2007).

are less equipped to make critical transitions from “learning to read” to “reading to learn”, and may fall further behind with the passing of each school year. When undetected, early skill gaps influence students’ capacity for further learning and their receptivity to later interventions.

Overall, this large literature suggests that school outcomes are affected by differences in children’s family-based opportunities to learn. While schools help equalize learning opportunities during the school day and school year, research clearly demonstrates that learning opportunities are highly unequal during non-school time. These inequalities influence children’s eventual educational success.

Summer is the extended period of non-school time. What children do during the summer varies greatly. Some are left to ‘entertain themselves’, while others engage in a variety of more structured activities such as camps, travel, and organized sports. More affluent and educated parents tend to purposefully manage their children’s summer months. Importantly, these parents tend to strategically select activities that keep children learning throughout the summer⁴.

An important body of research has examined children’s literacy development over the elementary grades. This research suggests that achievement gaps tend to emerge early and then grow over time. This research has also investigated the seasonal timing of learning during the year, focusing on children’s literacy skills during the summer months when school is not in session. This “seasonal learning” research compares students’ learning rates – how much literacy they acquire over time - during the school year versus during the summer months.⁵ This research tends to find that poor children begin the first grade with lower skill levels than other children, but can largely keep pace with their classmates during the school year. However, during the summer months, many of these disadvantaged students suffer from learning loss. In particular their literacy skills, as measured on standardized tests, tend to erode when school is not in session. Using metrics that convert reading scores to grade-month equivalents, researchers estimate that poorer children can lose more than two months of reading achievement during the summer, while their more affluent counterparts may gain some skills. This phenomenon of learning loss and widening gaps over the summer months has been called “summer setback”.

Research suggests that many disadvantaged children find it difficult to recover from summer learning losses. These students tend to learn at a slower pace during the school year, and are not able to catch up to their advantaged peers. Others repeatedly lose ground during consecutive summers, compounding summer losses over several years. If, for instance, a student loses 2.5 months of literacy each summer over 4 consecutive summers, that student would have lost an entire grade level over that time just in the summers alone.

⁴ See National Center for Summer Learning at <http://www.summerlearning.org/index.php>

⁵ For examples, see Alexander et al. (2007); Borman and Boulay (2004); and Downey et al, (2004).

Summer setback can have cumulative, long term and negative consequences. Research suggests that by Grade 9, two-thirds of the achievement gap between advantaged and disadvantaged students can be attributed to earlier patterns of summer learning losses and gains. The preeminent researchers on summer setback found that these summer gaps predict students' high school grades, drop-out and graduation rates, and postsecondary attendance.

What explains summer setback? It appears to be a product of highly unequal out-of-school learning opportunities during summer vacation. Some children find themselves in summer environments that continue to nurture literacy and numeracy skills on a daily basis, while others may never see a book or hold a pencil again until September.

This research suggests that interventions are needed to reduce differences in summer learning opportunities. Such interventions could reduce learning loss, help struggling students keep pace, and even close literacy gaps. One such intervention is summer literacy programs. Summer programs substitute "free" summer time for more structured learning time. These programs have shown mixed results, but can often boost numeracy and literacy skills, particularly for disadvantaged youth. They appear to help struggling young readers, particularly from disadvantaged environments, by giving them needed additional hours of daily reading assistance. While all children benefit from assistance, benefits appear to be significantly stronger for the most economically disadvantaged children.

The Summer Literacy Learning Program



Summer Literacy Learning Program
...Professional Development

"I felt like this was a wonderful two-week PD workshop! I learned so much from the other two teachers at the site! We had great professional dialogue and I have taken a lot of this information back with me to my regular school sites. I have learned about new resources and ways of teaching things to 'spice things up'."

Teacher

The Summer Literacy Learning Program

In total, 28 Boards offered Summer Literacy Learning Programs funded through the Summer Literacy Learning Project. Twenty-two Boards started the program in late June or early July, and 4 Boards ran an August program. Fifteen Boards ran 2 or 3 classes, ten Boards ran 3 or 4 classes, two Boards ran 5 or 10 classes respectively and 20 Boards ran a 2 or 3 week program. Some of the Boards operated Summer Literacy Learning Programs from multiple sites. Conservatively, 1179 students attended (Appendix 1)⁶.

| | | | | | | |
|----------------|----------|----------|----------|----------|----------|-----------|
| CLASSES | 1 | 2 | 3 | 4 | 5 | 10 |
| BOARDS | 7 | 8 | 7 | 3 | 1 | 1 |

The number of weeks and total days also varied. Based on the number of instructional days, 7 Boards operated a 4 or 5 week program (18 to 29 days), and 16 of the Boards ran a 2 or 3 week program (8 to 15 days).

| | | | | | |
|-------------------|-------------|-----------|--------------|--------------|-----------|
| TOTAL DAYS | 8-10 | 12 | 14-15 | 18-20 | 29 |
| BOARDS | 10 | 4 | 6 | 6 | 1 |

Eighteen Boards offered a half-day program (3 to 5 hours), and nine Boards offered a full-day program (6 to 7.5 hours).

| | | | | |
|--------------------|------------|--------------|--------------|----------|
| TOTAL HOURS | 3-4 | 4.5-5 | 6-6.5 | 7 |
| BOARDS | 13 | 5 | 8 | 1 |

The instructional hours and hours devoted to literacy and recreation also varied widely. Based on the available information, most Boards offered 3 to 4 hours of instruction (19 Boards). Four Boards offered 2 to 2.5 hours of instruction and 1 Board offered 5 hours of instruction.

| | | | | |
|--------------------------------|--------------|----------|---------------|----------|
| TOTAL HOURS INSTRUCTION | 2-2.5 | 3 | 3.25-4 | 5 |
| BOARDS | 4 | 11 | 8 | 1 |

⁶ Information is missing from some Boards. The calculations reflect available information.

Most of the Boards also added a recreational component to the program. Twelve Boards offered 1 hour or less of recreation, and 9 Boards offered 2 or 3 hours of recreation. One full day program (7.5 hours) included 4 hours of recreation.

| | | | | |
|-------------------------------|--------------|----------|----------|----------|
| TOTAL HOURS RECREATION | 0.5-1 | 2 | 3 | 4 |
| BOARDS | 12 | 4 | 5 | 1 |

Optimizing the Design of Summer Programs

While the statistical analysis suggests the Summer Literacy Learning Program slowed summer learning loss, students from 9 English Boards had net gains in literacy skills or closed literacy gaps. In light of these findings we have isolated the characteristics of 8 of these programs.

Based on the descriptive data presented below, there is nothing remarkably different about these programs. On average, these programs ran for 3 weeks (14.5 days), were 4.5 to 5 hours in duration which included 3 hours of instruction and offered less than 2 hours of recreation. However, there is a lot of variation in terms of the number of days (10 to 20 days), total hours (3 to 7.5 hours), instructional hours (2 to 4 hours) and recreational hours (0 to 4 hours).

| BOARD | START MONTH | TOTAL DAYS | TOTAL HOURS | INSTRUCTION HOURS | RECREATION HOURS |
|---------------------------------|-------------|-------------|-------------|-------------------|------------------|
| Reduced Achievement Gaps | | | | | |
| A | July | 10 | 5 | 4 | 1 |
| B | July | 20 | 6 | 3.5 | 2.5 |
| B2⁷ | July | 12 | 3 | 2 | 1 |
| C | August | 10 | 7.5 | 3 | 4 |
| D | July | 20 | 3 | 2.5 | .5 |
| E | July | 15 | 6 | 3.75 | 2.25 |
| AVERAGE | | 14.5 | 5 | 3 | 1.9 |
| Achievement Growth | | | | | |
| F | July | 12 | 3 | 2 | 1 |
| G | July | 20 | 4 | 3 | 1 |
| H | July | 12 | 3 | 3 | 0 |
| AVERAGE | | 14.7 | 3.3 | 2.7 | .7 |

These findings mirror the quantitative analysis which revealed that the number of days, hours of the program and hours devoted to instruction or recreation were *not* statistically significant and did not predict summer learning gains or losses.

⁷ Board 'B' operated two sites that varied.

To understand the relative success of these programs, we turned to the feedback provided by the Regional Leads and summer program teachers. Our final recommendations reflect these insights. Based on their feedback, these programs had all or most of these characteristics:

Early Planning

- Afforded Boards the opportunity to provide targeted professional development for teachers, cooperation and coordination of resources.
- Enhanced decision-making in terms of student participation criteria and identifying those students who would best benefit from a short term program.
- Enhanced communication and coordination with literacy experts (e.g., Board consultants, Literacy Coach).
- Ensured the availability of resources that support rich learning experiences. When resource gaps were noted, funds were allocated to support the purchase and timely delivery of new resources.

Knowledgeable Program Leads/Coordinators

- Had a deep understanding of literacy learning.
- Provided clear direction, reinforced the importance to the program and facilitated ongoing communication with teachers, parents and community partners.
- Attended sites daily, solved problems, responded to attendance issues and to parent and community questions.

Clear Expectations

- About programs goals, materials and resources were communicated by program leads/coordinators.
- Included connecting summer programs to broader curricular goals.
- Were communicated to parents including the benefits of the program, attendance, additional out of classroom experiences and parents role.

Early Connections/Partnerships

- Included planned strategies for parent/guardian involvement that is critical for on-going home-school connections and literacy learning. These strategies included detailed hand outs, presentations, and other appropriate communications.
- Included community partners. These partners supported enriching opportunities such as breakfast/lunch programs, field trips, library programs, swimming lessons at YMCA and other community programs.
- With Boards who have experience with summer programs. These connections included sharing information about resources, communication, programming and professional development.

Primary Findings: What the Research Study Told Us



Summer Literacy Learning Program
...Positive Social Interactions

"...forming new relationships, gaining more social skills and an elevation in both self esteem and the happiness of the kids (they seemed to be excited to come each day). Improved social skills were evident when playing the literacy games".

Teacher

Primary Findings:

What the Research Study Told Us

Research Context

Research finds that many students suffer from learning loss during the summer months, and that disadvantaged students are most vulnerable. It also finds that summer literacy programs can reduce those losses. The goal of the quantitative research component of the SLLP was to generate rigorous measures of summer learning and estimate the effectiveness of summer literacy programs.

This research was conducted for a particular population. The SLLP was not mandated to serve a representative slice of Ontario children, but to instead serve students in need of an early literacy intervention. Most participating Boards and schools had average EQAO scores below the provincial average. Educators in those schools invited students they deemed to be struggling with early literacy. Participants were invited, but not compelled to participate. Boards successfully attracted almost 1200 students who needed a literacy intervention. The sample of summer participants was more academically and socially disadvantaged than the Ontario average. These children were compared to their June 2010 classmates, who formed the control group for research purposes. The French-language component of the study examined 80 summer participants and 60 control students. The English Language component examined 601 summer participants and 1729 controls, though there some missing data among both groups. These data are summarized below.

| ENGLISH BOARDS | | | | |
|------------------------------------------------|------------------------------------------|------|--------------------|----------------------|
| STAR / GB+ TESTING | | | BOARD LEVEL | PARENT SURVEY |
| Summer Participants: Wrote June and Sept Tests | Control Group: Wrote June and Sept Tests | | | |
| | 2230 | 2330 | 2757 | 1491 |
| FRENCH BOARDS | | | | |
| 80 | 60 | 140 | 132 | 95 |

The SLLP protocol for data collection was complex, and involved merging three types of data: measures of student literacy in June and in September, additional baseline information from Boards, and a parent survey. Data included measures of student skills at two points of time, just before the end of the school year in June, and just after the beginning of the subsequent school year in September. These data are unusually rich and detailed for the purpose of measuring summer learning gains / losses and evaluating summer literacy programs. To our knowledge, these are the best Canadian data ever

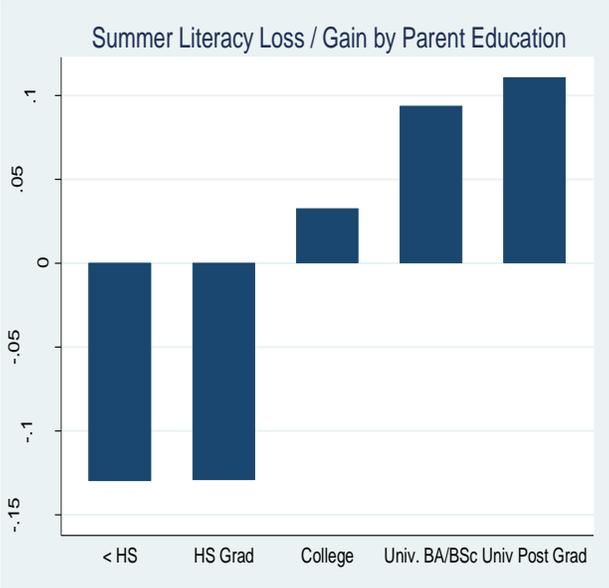
collected for these purposes. A variety of statistical procedures were used in analysis. The following sections discuss the main primary findings of the SLLP. It is organized by three guiding research questions.

Question 1: Did Expected Patterns of Summer Literacy Gains and Losses Emerge?

For the English Language children, including both summer participants and controls, the answer to the above question is “yes.” About 46% of students experienced some learning loss over the summer, while 10% ‘broke even,’ and 44% had gains. Some children had sizeable gains and losses. About 1/3 gained 2 months or more, representing an increase on par with school-year learning rates. But 37% lost 2+ months, and 31% lost 3+ months. These data point to a wide range of student fortunes over the summer. Many lost ground, while an almost equal proportion gained ground. Both contributed to a widening of literacy levels among students. In other words, when students returned from summer vacation, gaps were wider than they were before students left school. Many students returned to school decidedly worse off than when they left. These data suggest that summer setback is prevalent among a large number of Ontario English Language children. As such, these data signal a great need for intervention.

These patterns of losses and gains differ by students’ social characteristics. Figure 1 below shows summer learning by parents’ education. The left-side bars show that children with parents who are high school dropouts and/or graduates lost an average of 1.25 months over the summer. In contrast, children with parents with one/more university degrees gained literacy skills. In combination, the total gap between these students widened by 2.4 months over the summer.

Figure 1



A similar trend occurs for family income. In figures not shown, students in the poorest quartile lost an average of a half month over the summer, while students in the top quartile gained an average of about .75 months. The gap between the lowest and top income quartiles widened by about 1.25 months. If such differentials are compounded over several summers, a profound learning gap will emerge. Similarly, data show that literacy gaps widened between males and females over the summer by about 1 month, which if compounded over several summers can lead to a profound disadvantage for many young boys. Students that face early academic challenges may also be susceptible to summer literacy loss. Students with an IEP lost about .6 of a month over the summer, creating an overall gap of about .8 months between them and students without an IEP.

Taken together, these data reveal clear patterns of summer learning losses by family socioeconomic status, gender, and student ability. They suggest that socially and academically disadvantaged students are susceptible to learning loss, and that literacy gaps among these groups tend to widen over the summer months.

These findings need to be qualified somewhat when data from French Language students are examined. Using a different measure of literacy, far fewer French Language students were measured as having summer learning loss (5%) or as 'breaking even' (23%). Some of this discrepancy can be attributed to key differences between the student populations, and to key differences in measurement. The SLLP sample of French Language students tended to have somewhat fewer social disadvantages than their English-speaking counterparts. Perhaps more importantly, summer learning was measured differently among the French Language students, both in terms of the instrument and in terms of the timing of the tests. The relatively low levels of summer learning loss detected in this portion of the study may have partly reflected the longer time span between the spring and fall test dates for these students, which may have underestimated summer learning losses.

Question 2: Did Boards Successfully Attract Needy Students?

Both French Language and English Language Boards attracted students who faced considerably more disadvantages than their classmates. Among English Language students, summer attendees were significantly more likely to have an IEP, to be male, to have lower June grades and literacy scores, and to have less educated, lower income, and younger parents. A similar pattern emerged among French Language participants, who were far more likely than the control group to have an IEP. They also had significantly lower spring GB+ scores and language grades compared to the controls. Parents of the summer attendees were also, on average, significantly less educated and in lower income categories.

Overall, these data demonstrate that summer programs in both languages attracted needy students, as indicated by measures of prior academic performance and demographics. Boards are to be commended for their success in attracting their target populations. In fact, as discussed in subsequent

sections, this very success created analytic challenges. If participants at the start of the summer were much more susceptible to learning loss than the controls, valid comparisons could become difficult.

Question 3: Did Summer Programs Narrow Literacy Gaps?

This question represents the heart of the analysis of summer programs. It compares learning gains and losses between June and September for both summer attendees and controls. Table 2 summarizes results for both languages.

Among the French language students, summer attendees not only had positive summer gains, but also narrowed the gap with their peers. In June, participants were 4.32 GB+ points behind the controls, but by September they were only 2.79 points behind. This represents a 35% narrowing of the gap. Simple regression models estimate that attending summer programs boosted GB+ scores by 1.19 points over the controls. Since the summer attendees were also socially and academically disadvantaged according to several indicators, adjusting for these variables raises this estimate. Full statistical models estimate the effect of summer programs to be up to 1.60, with an effect size ranging from .55 to .77, which is very large by the standards of educational research. This finding should be qualified, however, by noting that this is a relatively small study, and that effect sizes tend to be smaller in larger scale studies. Nonetheless, this is a very encouraging result. These results are depicted in Figure 2 using box plots⁸ to compare distributions of scores for both the controls and summer participants. The plots show that summer students were substantially behind their control group peers in June. In fact, program attendees at their upper quartile matched only the median control student. By September, the medians for both groups rose, but the summer attendees rose more substantially.

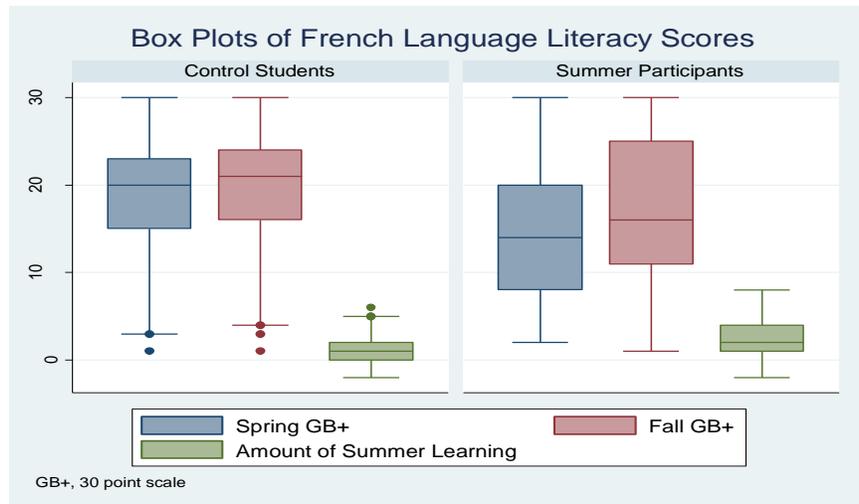
⁸ Box plots summarize entire distributions of students by denoting the minimum score, lower quartile, median, upper quartile, and maximum scores. The “mid-box” depicts the distance between the lower and upper quartiles (i.e., inter-quartile range). The line that divides the mid-box is the median. Tails or whiskers extend from the mid-box to the minimum and maximum values. More extreme values, outliers, are depicted by single dots. For our purposes, box plots can reveal the effectiveness and equitability of summer programs, since they reveal not only averages, but also ranges of typical and atypical cases. For instance, the effectiveness of programs can be deduced by examining the average levels of student scores. Groups with higher average reading scores will have medians and midboxes that are higher or upwards on the vertical scale. But in addition, the equity of programs can be deduced by examining the range of scores. Groups with more equitably distributed reading scores will have short ‘whiskers’, smaller inter-quartile ranges, and few or no outliers. In contrast, scores that are highly unequal would be distinguished by longer boxes and tails, substantial skew, and perhaps outliers that fall below the bottom of the midbox.

Table 2: Effects of Summer Programs on Summer Literacy Loss/Gain

| | No Controls | Controls for gender, report card data | Additional controls for IEP, Parent Ed, Income, Language use at home | Propensity Score Matching | Effect Size (sd units) |
|---------|----------------|---------------------------------------|----------------------------------------------------------------------|-------------------------------|------------------------|
| French | 1.19 (n=132) | 1.24 (n=132) | 1.78 (n=73) | ATT 1.63 (n=131) ATE 1.13 | +0.79 (P<.01) +0.55 |
| English | -.074 (n=2330) | -.040 (n=1271) | -.058 (n=495) | ATT -.046 (n=484) ATE .007 | -.07 +.01 |

Note: This table is labeled “Table A3” in the Appendix. French results are calculated from differences between Fall and Spring GB+; scores from late August were used for some summer students. The mean summer gain was 1.86, sd=2.07, n=132. English results are calculated differences between September and June Grade Equivalent (GE) scores. The mean was -.016, sd=.644, n=2330.

Figure 2

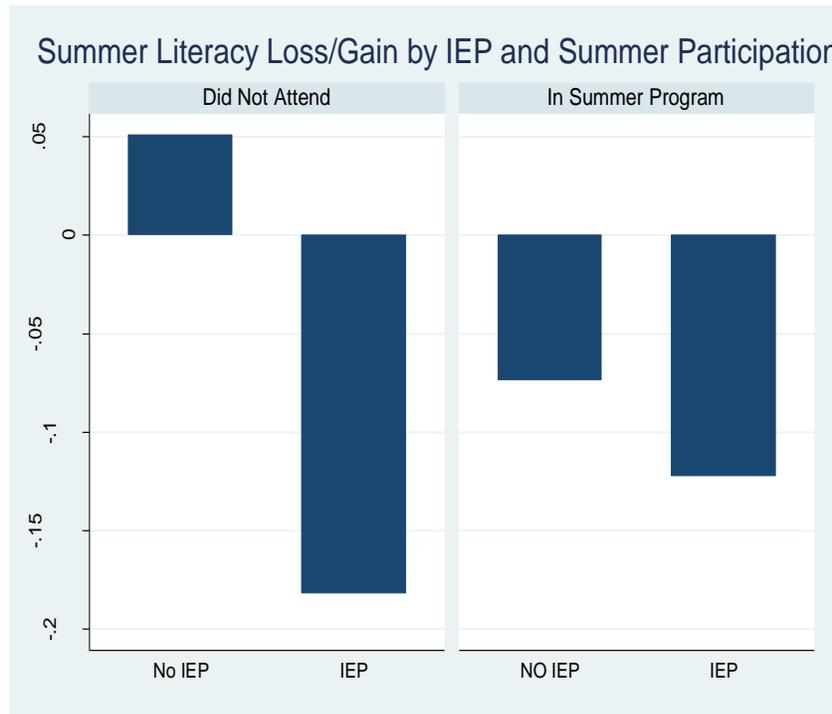


The story for English Language Boards is more complex. These Boards also attracted students to its summer programs who were most susceptible to learning loss. Importantly, some of their disadvantages may have been unmeasured. SLLP team members reported meeting summer students with behavioural and attention problems. If such problems make students more vulnerable to summer learning loss, and if more participants than controls had these additional vulnerabilities, baseline measures may not fully capture participants' prior disadvantages, and statistical tests can underestimate the effectiveness of the summer programs. This distinct possibility is dramatized in Table 2. Initial regression models estimate that program attendees lost $\frac{3}{4}$ of a month of literacy more than the controls. If taken literally, this would mean that summer programs actually had a negative effect on students. But after taking into account many student characteristics, a different picture begins to emerge. Full models show that effects are not statistically significant, and are slightly positive. Taken at face value, they suggest that participants did not learn significantly more than comparable children in the control group who did not attend summer programs.

Such an interpretation would be naïve, however. The “zero” effect represents an average that masks a great range of outcomes among both summer and control students. Among the 600 participants, 50% gained some ground and 20% gained 3+ months. Several Board programs did raise average scores and narrow gaps as hoped, though other Boards were less successful, and brought down the average. But more importantly, participant-control comparisons are misleading if there was a sizeable amount of unmeasured disadvantage among attendees. As discussed in previous sections, teachers invited students they believed were in profound need of an intervention. While some of these students' problems were surely captured by report card and survey data, some were likely not, such as those involving behavioural and attention difficulties. Measurable differences can be statistically adjusted, but unmeasured differences are more problematic, and may cause models to underestimate the positive effects of summer programs.

That is very likely to be the case with the English Language SLLP. Isolating specific sub-populations of learners reveals that while participants suffered some learning loss, control students with similar problems had *worse* losses. Figure 3 compares summer learning rates for students with and without an IEP. Among students without an IEP, controls fared better than participants, but that difference is likely a product of the additional disadvantages faced by participants, who were invited into programs for a range of reasons. But the effect of summer programs is arguably illustrated by comparing the fortunes of control and participant students with an IEP. While participants with IEP's had a net summer loss, controls with IEP's had greater losses, nearly twice those of participants.

Figure 3



A similar pattern emerges among students with June PMB/DRA scores of less than 10 (figures not shown). These readers are also prime candidates for summer learning loss. Data show that these students lost ground over the summer, regardless of whether or not they attended a summer ground. However, losses were nearly doubly large among control students. This result can be interpreted as indicating that summer programs reduced this potential learning loss among this population of students.

These additional analyses suggest that while it is reasonable to hope that programs can consistently raise achievement and narrow gaps, it is also important to recognize the value of reducing potential learning loss. If summer programs have students that are highly susceptible to summer loss, minimizing those losses represents a positive and significant impact, even if those students still have a net summer setback. For more severely disadvantaged students, it may be naïve to expect program participants to surpass the summer achievement of their more advantaged peers. Instead, programs should be seen to be effective if they can reduce potential summer losses among at-risk children.

And, along these lines, the potential impact of these interventions needs to be placed in context. About 70 days elapsed between the end of 2009-10 school year, and the first school day of the 2010-11 school year. Some SLLP summer programs were only 2 weeks long. Students in these programs, therefore, were exposed to 10 days of instruction and 60 days of non-instruction. Considering that most summer attendees were susceptible to summer learning loss, it less surprising that many had a

net loss over the summer, despite attending high quality programs. Some students likely made gains over the immediate run of the programs, but lost ground during the remaining summer weeks. In this light, a two week program is a rather ‘small dose’ for a major ailment.

In summary, the research study had several primary findings:

- First, a sizeable number of English Language children had substantial amounts of summer learning loss. This is not surprising, since the SLLP took place in schools where many children are vulnerable to these losses. Over the summer, literacy gaps became wider for children whose parents had less education and lower incomes, for males, and for students with IEP’s. These data signal a need for interventions that can reduce summer learning loss. Less summer learning loss was detected in the French Language study, likely due in part to differences in measurement.
- Second, French Language and English Language Boards each attracted socially and academically vulnerable children to their summer programs.
- Third, findings for whether summer programs raised achievement and reduced gaps were mixed. French Language programs were clearly successful, as summer students reduced 35% of the achievement gap between June and September. Some English Language programs had comparable outcomes. Others did not, though they likely shrank summer learning gaps that would have otherwise widened.
- Fourth, students that are highly vulnerable, such as those with IEP’s and low PMB/DRA scores, had substantially less learning loss when they attended summer programs. Minimizing these losses among vulnerable students represents a significant accomplishment.

Secondary Findings: What Parents, Teachers, Students and Program Leads Told Us



Summer Literacy Learning Program
...Reinforcing Positive Habits

"I love this program because it keeps my kids in the routine of school"

Parent

Secondary Findings:

What Parents, Teachers, Students and Program Leads Told Us

The response to the Summer Literacy Learning Program was very positive and there was a spirit of engagement and cooperation among parents, teachers and students. Teachers and parents discussed how the summer program reinforced skills, positive social interactions and healthy lifestyles throughout the summer months. Teachers and parents provided concrete examples of how students flourished academically and socially, and they linked these developments to the composition and content of the summer programs. Many teachers also discussed how the structure of the Summer Literacy Learning Program presented unique professional development opportunities that enhanced their approach to teaching. Overall, teachers appeared energized by their students' success and confidence. Below we elaborate on each of these findings and provide a summary of key ingredients that informed our recommendations (see Appendix 3).

Parent Engagement

Activities that generate parent engagement, including trust and positive social norms, are linked to academic achievement (Coleman 1990; Goddard 2003). The data suggests that the Summer Literacy Learning Program encouraged the development of parent engagement in two ways. First, the summer program generated goodwill. Parents expressed gratitude and viewed the summer program as an indication of the Board's commitment to their son or daughter's academic progress. As one parent stated (Parent 3613111):

"I am thankful to have my son selected for this program.... Any help outside of the regular school year and our home invested towards our children's progress is appreciated and taken seriously".

Second, the summer programs made a concerted effort to involve parents in the recreational *and* academic dimensions of the program. The structure of the summer promoted new connections with parents, and parents supported the goals of the summer program at home. Parents also participated by serving breakfast, working with their children on an activity during the program (e.g., journal writing), participating in a 'read aloud', and working at home with their children on an activity provided by the summer program teachers. Parents also participated in workshops and information sessions that were offered in conjunction with the summer program. Teachers described interacting with parents on a daily basis.

Key Ingredients: Parental Engagement

Parents:

- Became active partners.
- Developed stronger relationships with local schools and teachers.
- Were provided with an opportunity to learn new skills to help their children succeed in school.

Summer Programs:

- Were free of cost to parents.
- Actively encouraged parental participation.
- Provided high quality programs and supervision for parents.

Benefits Include:

- Strengthened home-school connections.
- Parents became more informed and confident about simple ways to support academic achievement and more comfortable contacting their son or daughter's teacher.
- Parents gained confidence in the summer program and local school/Board by seeing their children happy and enthusiastic and by witnessing concern for their children beyond the school year.

Student Development and Engagement

“By the end of the program the students considered themselves ‘readers’”.

(Principal, 1B).

The Summer Literacy Learning Program supported students' cognitive and social development and physical wellbeing in a four key ways. First, teachers and parents discussed how the summer program kept children in a routine, supported skills taught during the previous school year, and improved school readiness and literacy skills. After starting off the new school year, a grade 3 teacher stated that “[T]he students involved in the project can articulate the reading strategies very well in class...and have a good sense about how/why they work” (Teacher 1A). Parents also articulated the potential benefits of summer programs (Parent, 2912117):

“I feel that [summer programs] are a great way of learning activities. It is fun and the children enjoy themselves. It is also a great way for JKs to get ready for school. I would love to see these activities continue...”.

Second, teachers noted that “improved social skills were evident” (Teacher, 5D). Some programs mixed children of different grades and ages which presented the older students an opportunity to become “role models” and “mentors” (Teacher, 2I). Several teachers and parents connected the summer program to “visible improvement” in students' confidence (Cluster 2F).

Third, the summer programs supported children’s health by scheduling nutritious meals and recreation. Teachers and parents noted that many students would not have had the opportunity to be as active or to participate in daily recreational activities without the support and structure of the summer program.

Fourth, teachers and parents discussed heightened student engagement and confidence, and a noticeable change in children’s attitude toward literacy. One teacher described how his students’ exhibited a “positive attitude, increased confidence” and “motivation to write and reflect on their feelings, opinions and new experiences” (Teacher, 4E). Another teacher explained that children came to realize that “they love stories and books”. She concluded, “I consider this a great success” (Teacher, 2F).

Parents also noted a shift in their children’s attitude about literacy and school more generally. As one parent described, “[T]his is the first time I have seen my daughters running out the door, so excited to go to school” (Cluster 1, Anonymous). Another principal stated that “[M]any of the parents...[were]...thrilled to see their children so enthusiastic to be part of ‘reading camp’ despite having to give up part of their summer to do so” (Principal, 2A). Overall, the program provided children with an enriched summer.

Key Ingredients: Student Development and Engagement

Students:

- Were provided with an opportunity to enhance their literacy skills.
- Developed social skills through small peer group interaction.
- Were provided with an opportunity to enhance leadership and mentorship skills.
- Were physically active.

Summer Programs:

- Provided continuity and supported literacy and school readiness.
- Provided engaging materials including computer technology, manipulatives, varied text forms such as levelled texts, picture books, and non-fiction materials.
- Provided a positive, fun learning environment and low teacher pupil ratios.
- Supported nutrition and physical fitness by scheduling healthy snacks/meals and recreation.

Benefits Include:

- Increased student engagement and improved social skills.
- The development of literacy skills.
- Increased self esteem through literacy skill development, positive interactions and new experiences.

Teachers

Teachers expressed overwhelming support for the summer program. The structure of the program, smaller student teacher ratios and opportunities to collaborate presented teachers with unique professional development opportunities. As one teacher described, she learned from her colleagues, and will take the information and resources back with her to her regular school (Teacher, 2G). Similarly, another teacher explained how this experience informed her understanding of programs that facilitate student achievement (Teacher, 2H):

“I have gained more knowledge about the characteristics of struggling readers which will help me in planning/implementing programs that will reach all learners”.

Several teachers were also encouraged by their students’ success and by parents’ positive response to the program. Teachers discussed developing positive relationships through regular face to face interactions. Teachers described how those interactions built trust, particularly with more reluctant parents. Those parents became more engaged with their child’s learning.

Key Ingredients: Teachers’ Professional Development

Teachers:

- Expanded their repertoire of literacy teaching strategies and instructional materials.
- Collaborated with colleagues.
- Had an opportunity to have regular face-to-face interactions with parents.

Summer Programs:

- Had smaller student-teacher ratios.
- Provided opportunities for professional development.
- Provided opportunities for professional dialogue and collaboration.

Benefits Include:

- Deeper understandings of the needs of struggling students.
- Expanded knowledge and skills.
- The development of positive relationships with parents.

Community Partners

Several programs made a concerted effort to develop community partnerships, particularly to assist in the area of recreation. Healthy snack and breakfast programs also involved community partnerships, and volunteers supported the purchase, preparation and serving of nutritious food. Other partners included the Rotary Club and business associations.

Key Ingredients: Community Partnerships

Community Partners:

- Took an active role in supporting programs with their unique expertise and resources.

Summer Programs:

- Activity developed community partnerships.

Benefits Include:

- Community partners gained greater understanding of current education practices, including instructional strategies and expectations for teaching and learning.

Conclusions



Summer Literacy Learning Program
...Healthy Lifestyles

“The students had 1 hour of physical activity everyday. I strongly believe if they were at home, they would not get that. Everyday we had a healthy breakfast and snack. We always promote healthy living.”

Teacher

Conclusions

Summer literacy loss is a pervasive problem, particularly for disadvantaged students. The 2010 Summer Literacy Learning Programs successfully identified, invited, and recruited students with very limited literacy skills who have fewer opportunities for enriched summer learning experiences.

Data suggests that summer learning loss is widespread; the Ontario Summer Literacy Learning programs minimized summer learning losses for many students. Among English Boards, half of summer students maintained or raised their achievement levels, and in some cases, disadvantaged summer students caught up with their more advantaged peers. Among French Language Boards, most summer students raised their achievement and narrowed gaps between them and their peers.

Boards, parents and teachers reported that the Summer Literacy Learning Program had considerable positive benefits, including student engagement, professional development for teachers, building partnerships with parents, and making links with the community. While the focus of these programs was on literacy learning, the programs also fostered positive social interactions for students, reinforced positive learning habits, provided recreational opportunities, and encouraged healthy lifestyles.

Boards fully supported the summer learning programs, and were committed to their success, often overcoming implementation challenges relating to timelines, research requirements, communication, and staff requirements.

The 2010 Summer Literacy Learning Program afforded Boards considerable flexibility to design and implement their summer classes, however, Boards did request direction for organizing programs, defining outcomes, and accomplishing goals.

The 2010 Summer Literacy Learning Program identified 9 boards that either boosted student achievement or narrowed gaps, and this information can be used to refine the 2011 Summer Learning Program.

Recommendations



Summer Literacy Learning Program
...Student Engagement

“A boy signed up for this program for only 2 of the 5 weeks to give it a try. Early in the first week he was so excited he brought books home to read to his mom. He had never done this before. Now he is highly engaged and has signed up for the full five weeks.”

Teacher

Recommendations

RECOMMENDATION #1

SUMMER LITERACY LEARNING PROGRAMS CAN ENHANCE AND STRENGTHEN STUDENT SUCCESS IN SCHOOL BY REDUCING SUMMER LITERACY LOSS, PARTICULARLY AMONG THE MOST DISADVANTAGED STUDENTS.

Rationale

The Summer Literacy Learning Research provided clear evidence that disadvantaged students who experience greater challenges in literacy also suffer from summer literacy loss. The Project also suggests that quality summer literacy programs can minimize these losses, can sometimes increase levels of literacy achievement, and can even close literacy gaps in comparison to more advantaged students. Boards, parents and teachers strongly supported the Summer Literacy Learning Program, and saw many benefits to these programs. Other research suggests that disadvantaged students who participate in summer literacy programs over several years are less likely to drop out of secondary school and more likely to select appropriate pathways during their school careers.

Recommendations

1. The Ministry of Education fund 2011 Summer Literacy Learning Programs as an important strategy to support students who are most vulnerable to summer literacy loss.
2. The Literacy Numeracy Secretariat provide direction and support for Summer Literacy Learning Programs.
3. All Boards implement Summer Literacy Learning Programs that best meet the needs of their students and communities.
4. A Program and Planning Guide for summer literacy programs be developed and made available to all Ontario Boards.

RECOMMENDATION #2

DIRECT PROJECT FUNDING FOR THE 2011 SUMMER LITERACY LEARNING PROGRAM IS AN EXPECTATION OF BOARDS AND THE COMMUNITY.

Rationale

Providing project-directed funding to Boards to implement the Summer Literacy Learning Program was identified by Superintendents as being helpful to implementation of the Program and an encouragement to Boards to participate. Providing funding specific to the Summer Literacy Learning Program presented to Boards a clear expectation and focus. Financial reports for the funding were simplified in order to minimize the administrative burden on Boards which were required to maintain

appropriate records and follow their established accounting principles. Some Boards reported the funding as being more than necessary and in some cases the financial templates submitted by Boards at the conclusion of the Project noted unspent funds.

Recommendations

1. Project focused funding be allocated to the 2011 Summer Literacy Learning Program.
2. Board reporting requirements remain the same for 2011.
3. Flexibility in funding continue in order to allow Boards to target grade levels and identify students (according to Ministry direction and expectations for the 2011 Summer Literacy Learning Program. See Recommendation #8).
4. The allocation for Boards to operate Summer Literacy Learning Programs be reviewed and established according to current Board pay schedules for summer programs.
5. Where Boards can demonstrate a greater need and response from the community, consideration be given for increasing their funding allocation.

RECOMMENDATION #3

EXPANDING SUMMER LITERACY LEARNING PROGRAMS TO INCLUDE JUNIOR DIVISION STUDENTS PROVIDES GREATER OPPORTUNITIES TO MINIMIZE SUMMER LEARNING LOSS OVER TIME.

Rationale

Literacy development is an ongoing and continuous process during which students build on previous knowledge and skills. Research indicates that summer learning loss is cumulative and that these losses compound over time, creating widening gaps between more and less disadvantaged students. Students entering the junior division with existing summer learning losses would benefit from a summer learning experience that strengthened and deepened previous learning, and prepared them for future skill development and literacy competency. Students in the junior division are at that critical phase in their learning requiring instructional strategies that continue to engage, motivate and encourage learning.

Recommendations

1. Boards have the flexibility to use Summer Learning Literacy Program funding for both primary and junior division students.

2. An integrated primary and junior approach will provide teachers with more opportunities to individualize programs and support students that have significant needs in the area of literacy development and demonstrate summer learning loss.
3. Greater opportunities will exist for professional development between primary and junior division teachers.

RECOMMENDATION #4

PARENT INVOLVEMENT AND COMMUNITY SUPPORT ARE STRENGTHS OF SUMMER LITERACY LEARNING PROGRAMS.

Rationale

Parents reported that the 2010 Summer Literacy Learning Program provided opportunities for their children to fortify academics and build social skills. They clearly indicated that they hoped that Summer Literacy Learning Project would continue for 2011. Parents further stated that they supported the Program as it kept their children in the routine of school and increased both their self-esteem and motivation to continue learning. Parents also noted that the Summer Literacy Learning Program offered opportunities to converse with teachers regarding their child's learning levels and future needs. Teachers indicated that the summer programs allowed them time to build personal relationships with parents who were otherwise less likely to participate in other school activities and meetings.

Recommendations

1. Boards develop strategies and supports within the Summer Literacy Learning Program to involve parents and build mutual trust and cooperation that can enhance academic achievement.
2. Communication with parents should be frequent, particularly at the early stages of program development. Direct contact with parents through meetings, communication and discussion with regular school year teachers can set a positive stage for summer programs.
3. Involvement of School Councils and Parent Involvement Committees will assist Boards to outline to their school communities the benefits, organization and structure of Summer Literacy Learning Programs.
4. A method for eliciting comments from parents such as a parent survey at the conclusion of the Summer Literacy Learning Program is a helpful tool for future planning.

RECOMMENDATION #5

QUALITY INSTRUCTIONAL LEADERSHIP AND RESEARCH BASED LITERACY LEARNING STRATEGIES ARE ESSENTIAL TO THE SUCCESS OF SUMMER LITERACY LEARNING PROGRAMS.

Rationale

Teachers with a sound foundation in literacy learning, including curriculum and instructional practices are essential to a quality Summer Literacy Learning Program. Teachers who are excited, knowledgeable and committed to literacy learning are the best candidates to undertake a Summer Literacy Learning Program. Opportunities for professional development, planning and preparing for the Summer Literacy Learning Program and networks among educators are important to its success. The summer learning environment can also provide some flexibility for students in the areas of recreation, individual and group activities, but its primary focus must always be on literacy learning and minimizing summer learning loss.

Recommendations

1. To support teachers in the Summer Literacy Learning Program to become more knowledgeable with the pillars of quality literacy instruction; professional development opportunities should be undertaken by Boards in the spring of the year.
2. Teachers who have both the interest and the ability to instruct a Summer Literacy Learning Program should be made aware of opportunities to teach summer students.
3. The focus of the teacher must be on literacy development and minimizing summer learning loss.
4. A collaborative approach to providing a Summer Literacy Learning Program can include partnerships with the local recreation organizations, secondary school students and faculty of education volunteers and early childhood educators.

RECOMMENDATION #6

BOARD LEADERSHIP IN DEVELOPING, ORGANIZATING AND SUPPORTING THE SUMMER LITERACY LEARNING PROGRAM IS NECESSARY FOR SUCCESSFUL IMPLEMENTATION.

Rationale

The 2010 parent and teacher surveys indicated that the Summer Literacy Learning Program was more successful when Boards very early on in the process identified an instructional lead to oversee the organization of the Program who liaised with the Superintendent of Education with responsibility for this initiative. The regional leads also indicated that having a consistent contact at the Board level was

extremely helpful to both the research component and program organization. In Boards that did not identify a lead contact but left the responsibility to individual teachers or day school elementary principals, it was apparent that the research component and the structure of the Program presented more challenges. It was also noted that in smaller and more rural Boards, it was a greater challenge for these Boards to assign a lead for the Summer Literacy Learning Project. Some smaller Boards also indicated that the Superintendents responsible for elementary education already had a number of initiatives that limited their involvement. Solutions to challenges of programming, student attendance and parent concerns are best handled when a Board Summer Literacy Learning lead is present.

Recommendations

1. Boards employ or assign both a Superintendent of Education and a lead to coordinate, organize and support Summer Literacy Learning Programs.
2. Funding provided to Boards is flexible enough to hire appropriate and qualified leads, including individuals who are not currently employed by Boards, to oversee the Summer Literacy Learning Program.
3. Support for the development of quality Summer Literacy Learning Programs be provided through the development and organization of a Program and Planning Guide (note Recommendation #1).

RECOMMENDATION #7

SUMMER LITERACY LEARNING PROGRAMS ARE ENHANCED BY EFFECTIVE RESOURCES AND COMMUNITY SUPPORTS.

Rationale

Teachers who taught in the 2010 Summer Literacy Learning Program indicated that primary level literacy resources afforded them a range of instructional strategies and supports for students. A number of Boards were very innovative and creative in selecting appropriate resources and the use of motivating experiences for their students. In some Boards, connections between community organizations such as the Rotary Club and other agencies provided breakfast programs, library visits and connections between tutors and volunteers.

Recommendations

1. A range of resources by title and description be provided to support instruction of students in Summer Literacy Learning Programs.

2. The Board lead for the Summer Literacy Learning Program be encouraged to work with different community agencies to provide additional supports as needed and appropriate.
3. Boards be encouraged to purchase resources that can remain in the school or school system and extend student learning.

RECOMMENDATION #8

BOARDS HAVE REQUESTED EXPECTATIONS, CRITERIA AND REQUIREMENTS FOR SUMMER LITERACY LEARNING PROGRAMS.

Rationale

Throughout the Summer Literacy Learning Program, primarily at the beginning stages of implementation, Boards requested clarification as to the expectations, criteria and requirements for the Program. Specifically, a number of Boards asked as to the number of hours per day, the number of weeks and the curriculum expectations for the Program. It would be helpful for Boards if greater clarity could be provided for them as to what the parameters are for a Summer Literacy Learning Program and what makes a difference in terms of increasing literacy levels for students. Initially, it was decided to provide maximum levels of flexibility; the 2010 Research Project Report does specify some of the variables that influence the success of the Summer Literacy Learning Program.

Recommendations

1. Boards receive increased levels of direction with their funding allocation.
2. The Program and Planning Guide offer details as to a range of models for Summer Literacy Learning Programs.
3. A network of similar Boards be established to discuss successful practices and collaboratively identify those variables that impact on the success of their Summer Literacy Learning Program.
4. Regional leads during their visits continue to discuss with teachers and Board contacts the criteria used to identify students who are participating in the Summer Literacy Learning Program.
5. The Board Plan for the Summer Literacy Learning Program continue to identify challenges and solutions that Boards undertake during the development of the Summer Literacy Learning Program.

RECOMMENDATION #9

CONTINUING RESEARCH CAN GUIDE EVIDENCE-BASED POLICY ON SUMMER LEARNING, AND HELP SUPPORT THE ONGOING DEVELOPMENT OF SUMMER LITERACY LEARNING PROGRAMS AND SUPPORTS FOR STUDENTS WITH GREATER CHALLENGES.

Rationale

Literacy development is an ongoing and cumulative process impacted by summer learning loss. The 2010 Summer Literacy Learning Project clearly identified summer learning processes and provided an effective snap-shot of literacy losses, gaps and gains. However, this research is in its beginning stages. It would be enhanced by repeating the research protocol in June and September 2011. Such a study can investigate whether or not benefits of Summer Literacy Learning Programs extend over time; for example, whether those programs lessen the accumulation of learning disadvantages, and whether successful interventions and strategies emerge for students with greater literacy gaps.

Recommendations

1. Undertake a research study of the 2011 Summer Learning Program that includes both new students and participants from the 2010 program, and utilizes components from the 2010 research protocol.
2. Revise the research protocol based on lessons learned from the 2010 project.

RECOMMENDATION #10

RESEARCH INDICATES THAT SUMMER LEARNING LOSS IN MATH CAN BE EQUAL OR GREATER THAN LOSSES IN LITERACY.

Rationale

Summer numeracy loss can be as worrisome a problem as summer literacy loss. Yet most summer programs focus on literacy only, and teachers express greater levels of confidence in providing intervention strategies for literacy. EQAO scores are generally lower for math than for reading and writing. Summer numeracy programs can be part of an effective strategy for addressing summer learning loss in math.

Recommendations

1. Expand Summer Literacy Learning Programs to include numeracy.
2. Design a research protocol to monitor results of the programs in numeracy in conjunction with literacy.

References



Summer Literacy Learning Program
...Preparing for September

"...the experience acquired with this small group of students brings me many advantages. I learned that the students are all more motivated when there is individual and continuous feedback. I explained to them the advantages of being able to read common words on the whole, widening one's vocabulary, and the purpose of the activities. I shared with them the results of all the evaluations and what we needed to work on subsequently. The students demonstrated responsibility for and enthusiasm towards their learning. Consequently, I was so surprised and proud of the results that in September, I will begin the year with a program of this kind."

Teacher

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Executive Summary



Summer Literacy Learning Program

...Improved Reading and Comprehension

“Most of the teachers expressed overwhelming support for the program. Drawing on their professional expertise, teachers described how the summer program facilitated children’s school success. These teachers provided numerous examples of improved reading and comprehension skills, vocabulary and participation skills. Teachers witnessed rising ‘confidence levels’ and some teachers noted that the students ‘fear to participate evaporated and the level of meaning conversation increased’.”

Teacher

Executive Summary

Acknowledgements

The 2010 Summer Literacy Learning Project was successfully implemented through the efforts of many people, including parents, students, teachers and Board staff. The outstanding efforts of Board leads, regional leads and teachers must be noted. Completing the research protocol and implementing a stimulating and exciting literacy learning environment was always framed around the statement “this is going to be good for the students especially those pupils experiencing more challenges to literacy learning.” This Summer Literacy Learning Program was a hallmark of collaboration and cooperation between CODE, the lead researchers and the Literacy and Numeracy Secretariat.

Purpose and Objectives

The 2010 Summer Literacy Learning Project was designed to examine and determine the effects of a summer literacy program on the readings levels of identified primary students. The research protocol focused primarily on the effects of summer learning loss in regards to student literacy achievement. As part of the Summer Literacy Learning Project, selected Boards were asked to organize a Summer Literacy Learning Program for students in grades 1, 2 or 3. The research protocol included a control group and a group of invited students who participated in the Summer Literacy Learning Program. Both the control group and the participating students were tested at the end of June and at the beginning of September to determine changes in reading achievement levels.

Background

28 Boards participated in the research study and the implementation of a Summer Literacy Learning Program. 24 Boards were English Language Boards and 4 were French Language Boards. Boards were encouraged to invite students who were experiencing challenges in literacy learning representing communities with economic and social disparities. A research protocol was developed by the lead researchers and communicated to the participating Boards. CODE coordinated the Summer Literacy Learning Project, distributed funding to the Boards and liaised with Board leads to effectively ensure implementation in the 28 participating Boards. Reports required included a Board Plan for the Summer Literacy Learning Program, a financial report at the conclusion of the Summer Literacy Learning Program and a comprehensive report on the entire Summer Literacy Learning Project to the Literacy and Numeracy Secretariat.

Context: Why Summer Learning Matters

The effect of the summer program on raising achievement levels for students has received considerable debate among educators. Most recently, summer learning loss has drawn significant media and institutional attention. Researchers in Canada and elsewhere have found persistent

disparities in educational success among more advantaged versus less advantaged youth. To slow, prevent or even close gaps that emerge during the summer months, summer programs have been shown to boost numeracy and literacy skills particularly for disadvantaged children. While all children benefit from daily reading, its benefits are significantly stronger for the most economically disadvantaged children. Summer programs also generate many other positive benefits, including reducing the amount of weight children gain over the summer months. Summer learning programs assist students to stay in school longer, make better course choices and ultimately graduate from secondary school.

The Summer Literacy Learning Program

In total, twenty-eight Boards offered summer programs funded by the Summer Learning Literacy Program. Twenty-two Boards started the program in late June or early July, and 4 Boards ran an August program. Fifteen Boards ran 1 or 2 classes, ten Boards ran 3 or 4 classes, two Boards ran 5 or 10 classes respectively and twenty Boards ran a 2 or 3 week program. Some of the Boards operated summer programs from multiple sites. Conservatively, 1179 students attended. The number of weeks and the total days also varied. Based on the number of instructional days, seven Boards operated a 4 or 5 week program (18 to 29 days), and sixteen of the Boards ran a 2 or 3 week program (8 to 15 days). Eighteen Boards offered a half-day program (3 to 5 hours), and nine Boards offered a full-day program (6 to 7.5 hours). The instructional hours and hours devoted to literacy and recreation also varied widely. Based on the available information, most Boards offered 3 to 4 hours of instruction (19 Boards). Four Boards offered 2 to 2.5 hours of instruction and one Board offered 5 hours of instruction. Most of the Boards also added a recreational component to the program. Twelve Boards offered 1 hour or less of recreation, and nine Boards offered 2 or 3 hours of recreation. One full day program (7.5 hours) included 4 hours of recreation. The majority of Boards offered the Summer Literacy Learning Program during the month of July with at least four Boards offering an August program. Participating students in 9 English Language Boards and 4 French Language Boards had net gains in literacy skills or closed literacy gaps.

Primary Findings: What the Research Study Told Us

The Summer Literacy Learning research study was conducted for a particular population. The SLLP was not mandated to serve a representative slice of Ontario children, but to instead serve students in need of an early literacy intervention. Most participating Boards and schools had average EQAO scores below the provincial average. Educators in these schools invited students they deemed to be struggling with early literacy. Participants were invited, but not compelled to participate. Boards successfully attracted almost 1200 students who needed a literacy intervention. The sample of summer participants was more academically and socially disadvantaged than the Ontario average. These children were compared to their June 2010 classmates, who formed the control group for research purposes.

The French Language component of the study examined 80 summer participants and 60 control students. The English Language component examined 601 summer participants and 1729 control students; however, there was some missing data among both groups. The three questions that emerged were:

Question 1: Did Expected Patterns of Summer Literacy Gains and Losses Emerge?

Question 2: Did Boards Successfully Attract Needy Students?

Question 3: Did Summer Students Gain Literacy Skills over the Duration of their Programs?

In summary, the research study had several primary findings:

- A sizeable number of English Language children had substantial amounts of summer learning loss. This is not surprising, since the SLLP took place in schools where many children are vulnerable to these losses. Over the summer, literacy gaps became wider for children whose parents had less education and lower incomes, for males, and for students with IEP's. These data signal a need for interventions that can reduce summer learning loss. Less summer learning loss was detected in the French Language study, likely due in part to differences in measurement.
- French Language and English Language Boards each attracted socially and academically vulnerable children to their summer programs.
- Findings for whether summer programs raised achievement and reduced gaps were mixed. French Language programs were clearly successful, as summer students reduced 35% of the achievement gap between June and September. Some English Language programs had comparable outcomes. Others did not, though they likely shrank summer learning gaps that would have otherwise widened.
- Students that are highly vulnerable, such as those with IEP's and low PMB/DRA scores, had substantially less learning loss when they attended summer programs. Minimizing these losses among vulnerable students represents a significant accomplishment.

Secondary Findings: What Parents, Teachers, Students and Program Leads Told Us

While the primary findings are quantitative, the secondary findings are qualitative. The response to the Summer Literacy Learning Program was very positive and there was a spirit of engagement and cooperation among parents, teachers and students. Teachers and parents discussed how the summer program reinforced skills, positive social interactions and healthy lifestyles throughout the summer months. Teachers and parents provided concrete examples of how students flourished academically and socially, and they linked these developments to the composition and content of the summer programs. Many teachers also discussed how the structure of the summer program presented unique professional development opportunities that enhanced their approach to teaching. Overall, teachers appeared energized by their students' success and confidence. The positive findings of the Summer Literacy Learning Program are explained in more detail in the Report under the following categories:

Parent Engagement, Student Development and Engagement, Teachers, Healthy Lifestyles and Recreation and Community Partners.

Conclusions

The 2010 Summer Literacy Learning Programs successfully identified, invited, and recruited students with very limited literacy skills who would have fewer opportunities for enriched summer learning experiences.

Data suggests that summer learning loss is widespread; the 2010 Ontario Summer Literacy Learning programs minimized summer learning losses for many students. Among English Boards, half of summer students maintained or raised their achievement levels, and in some cases, disadvantaged summer students caught up with their more advantaged peers. Among French Language Boards, most summer students raised their achievement and narrowed gaps between them and their peers.

Boards, parents and teachers reported that the Summer Literacy Learning Program had considerable positive benefits, including student engagement, professional development for teachers, building partnerships with parents, and making links with the community.

Boards fully supported the Summer Literacy Learning Programs, and were committed to their success, often overcoming implementation challenges relating to timelines, research requirements, communication, and staff requirements.

Many Boards indicated a strong desire and expectation that CODE coordinate a 2011 Summer Literacy Learning Program with funds from the Literacy and Numeracy Secretariat.

Recommendations

The 2010 Summer Literacy Learning Project Report provides a range of recommendations including future research possibilities, extension of the Summer Literacy Learning Program, consideration to include numeracy development and the preparation of a Program and Planning Guide. Full details of the ten recommendations are in the Report. In summary, the following recommendations are key to future discussions regarding literacy achievement and summer learning loss:

- Support from the Literacy and Numeracy Secretariat for a 2011 Summer Literacy Learning Program
- Extend funding to additional Boards
- Consider including junior level students and/or broaden the program to include numeracy
- Develop a Program and Planning Guide to assist Boards to implement the 2011 Summer Literacy Learning Program
- Conduct further research to study the variables of summer learning loss and the impact on student numeracy

Appendices



Summer Literacy Learning Program
...Role Models for Learning

"I took great pleasure in watching how the students interacted with each other. Due to the age difference the grade 3 students became role models for some of the grade 1's and kindergartens. It was an eye opening experience for me when a young grade 3 boy (who had great difficulty fitting in during the first day) became a role model for a grade 1 boy who was diagnosed with Oppositional Defiance Disorder. The behaviour of both students seemed to change as they were both so engrossed in producing work and showing/helping each other."

Teacher

Appendix 1: Description of Summary Literacy Learning Program

| ENGLISH BOARDS | CLASSES | DAYS | INSTRUCTION HOURS | RECREATION HOURS | STUDENTS | TEACHERS | GIRLS | BOYS |
|---------------------------------|---------|------|-------------------|------------------|----------|----------|-------|------|
| Superior Greenstone | 1 | | | | | | | |
| Keewatin Patricia | 1 | 29 | 4 | 2 | 12 | 1 | 6 | 6 |
| Lakehead | 2 | 20 | | | 31 | | | |
| Rainy River | 1 | | | | | | | |
| Northwest Catholic | 1 | 20 | 3 | 1 | 15 | 1 | | |
| Algonquin and Lakeshore | 2 | 10 | 4 | 1 | 25 | 3 | 13 | 12 |
| Limestone | 2 | 10 | 3 | 3 | 29 | 2 | 13 | 16 |
| Renfrew County | 1 | 20 | 3 | 1 | 18 | 1 | 8 | 10 |
| Renfrew Catholic | 2 | 18 | | | 40 | 2 | | |
| Catholic DSB of Eastern Ontario | 2 | 15 | 3 | 3 | 39 | 2 | 22 | 17 |
| Kawartha Pine Ridge | 3 | 12 | 3 | 0 | 32 | 3 | | |
| TVDSB | 4 | 12 | 3 | 0 | 67 | 8 | 34 | 33 |
| Huron Perth Catholic | 1 | 10 | 2.5 | 2 | 15 | 2 | 0 | 15 |
| Avon Maitland | 4 | 14 | 2 | 2 | 80 | 4 | 38 | 42 |

| ENGLISH BOARDS | CLASSES | DAYS | INSTRUCTION HOURS | RECREATION HOURS | STUDENTS | TEACHERS | GIRLS | BOYS |
|----------------------------------|---------|------|-------------------|------------------|----------|----------|-------|------|
| GECSDB | 1 | 15 | 3.75 | 2.25 | 61 | 7 | 31 | 30 |
| Bluewater1 | 2 | 20 | 3.5 | 3 | 16 | 1 | 8 | 8 |
| Bluewater2 | | 12 | 2 | 1 | 16 | 1 | 8 | 8 |
| Bruce Grey Catholic | 3 | 10 | 3 | 4 | 51 | 3 | 14 | 37 |
| Hamilton Wentworth | 5 | 10 | 3 | 3 | 83 | 4 | | |
| DSB of Niagara | 3 | 12 | 2 | 1 | 132 | 17 | | |
| Peel | 4 | 10 | 3 | 3 | 68 | 4 | 31 | 34 |
| Rainbow | 2 | 15 | 4 | 1 | 34 | 2 | | |
| Near North District School Board | 3 | 15 | 3.2 | 0.8 | 53 | 3 | | |
| DSB Ontario North East | 1 | 20 | 2.5 | 0.5 | 23 | 1 | | |
| Simcoe County | 10 | 10 | 3 | 1 | 160 | 10 | | |
| FRENCH BOARDS | | | | | | | | |
| Grand Nord | 1 | 15 | 4 | 1 | 9 | | 4 | 5 |
| Aurores Boreales | | 10 | 3 | 0 | 17 | | | |
| Grandes Riveres | 2 | 10 | 4 | 0.5 | 31 | 3 | | |
| Franco Nord | 1 | 8 | 5 | 1 | 22 | 1 | 8 | 14 |

| ENGLISH BOARDS | CLUSTER | CLASSES | SITE 1 | SITE 2 | SITE 3 |
|---------------------------------|---------|---------|------------------|-----------------------|--------------|
| Superior Greenstone | 1 | | | | |
| Keewatin Patricia | 1 | 1 | | | |
| Lakehead | 1 | 2 | Ogden Community | Vance Chapman | |
| Rainy River | 1 | | | | |
| Northwest Catholic | 1 | | | | |
| Algonquin and Lakeshore | 2 | 2 | St Mary | | |
| Limestone | 2 | 2 | Frontenac | | |
| Renfrew County | 2 | 1 | Eganville | | |
| Renfrew Catholic | 2 | 2 | St John Bosco | St. Thomas | |
| Catholic DSB of Eastern Ontario | 2 | 2 | Sacred Heart | Immaculate Conception | |
| Kawartha Pine Ridge | 2 | 3 | Queen Mary | | |
| TVDSB | 3 | 4 | McGregor | North Meadows | |
| Huron Perth Catholic | 3 | 1 | REACH | | |
| Avon Maitland | 3 | 4 | Romeo | Clinton | |
| GECD SB | 3 | 1 | Dougal | Begley | Taylor |
| Bluewater1 | 3 | 2 | Peninsula Shores | Huston | |
| Bluewater2 | | | | | |
| Bruce Grey Catholic | 3 | 3 | Holy Family | St. Basil's | St. Joseph's |

| ENGLISH BOARDS | CLUSTER | CLASSES | SITE 1 | SITE 2 | SITE 3 |
|----------------------------------|----------------|----------------|-----------------|---------------|---------------|
| Hamilton Wentworth | 4 | 5 | Prince of Wales | | |
| DSB of Niagara | 4 | 3 | Lincoln | Matthews | Empire |
| Peel | 4 | 4 | Lancaster | | |
| Rainbow | 5 | 2 | Queen Elizabeth | | |
| Near North District School Board | 5 | 3 | Marshall | Davidson | Beatty |
| DSB Ontario North East | 5 | 1 | New Liskeard | | |
| Simcoe County | 5 | 10 | Regent Park | Terry Fox | |
| FRENCH BOARDS | | | | | |
| Grand Nord | 6 | 1 | | | |
| Aurores Boreales | 6 | | | | |
| Grandes Riveres | 6 | 2 | | | |
| Franco Nord | 6 | 1 | | | |

Appendix 2:

Primary Findings: What The Research Study Told Us

Research Methodology and Summary of Data

Researchers estimate summer learning by measuring student skills at two points of time, just before the end of the school year in June, and just after the beginning of the subsequent school year in September. This research finds that many students suffer from learning loss during the summer months, with disadvantaged students being most vulnerable. These studies also suggest that summer literacy programs can reduce these losses.

Prior to the SLLP, large-scale data on summer learning did not exist in Canada. Virtually all previously published Canadian research draws on annual data. While these studies have tracked student learning rates across grade levels over several years, this research has been incapable of estimating summer learning. Most of the studies on summer setback are from the United States, and no other Canadian study offers similar measures of summer learning and estimates of the effectiveness of summer literacy programs.

Research Design

The SLLP combined “seasonal learning” and “quasi-experimental” research designs. Seasonal learning designs distinguish learning gains and losses that occur during the school year from those that occur during the summer. They do so by first measuring student achievement near the end of a school year, preferably in June, and then again measuring student achievement near the beginning of the next school year, preferably in September. If neither measure overlaps with an excessive number of school days, they can accurately capture losses and gains that occur in July and August. Such data are crucial for evaluating summer programs.

Quasi-experiments are conducted when random assignment of students into either group is either impossible or undesirable. These designs are used to estimate the impact of an intervention, such as a summer learning program, by comparing outcomes of non-randomly assigned participant and control groups. This comparison is necessary for observing the causal impact of a program, due to a crucial possibility: an outcome might or might not occur regardless of an intervention. Control groups offer an estimate of the “counterfactual” – how participants would likely fare without the benefit of the intervention. Without a control group, researchers might make mistaken inferences about changes in the outcomes among program participants.

To illustrate this, consider a scenario. A group of students who are highly susceptible to learning loss take a 10 day summer literacy program. Imagine those students gained a significant amount of skills during the program, but lost some ground during the remainder of the summer, resulting in a net literacy *loss* over the full summer, despite benefitting from the program. At face value, a researcher might conclude that the program was *ineffective*, since students' average skills actually decreased over the summer. But imagine a comparable control group of disadvantaged students was found to have far greater literacy losses over the summer. This additional information leads to a very different conclusion: that the program was actually *effective*, since learning losses were smaller among participants than among the controls. By providing an estimate of how students would fare *without* an intervention, control groups are essential for making accurate conclusions.

The Representativeness and Comparability of the Participant and Control Samples

The sample of students that participated in the SLLP was far from a representative slice of Ontario children. Since the SLLP was mandated to serve students in need of an early literacy intervention, there was no consideration of random assignment into the program. Participants were invited, but not compelled to participate. Further, recruitment into the project was not based on an explicit sampling frame with an eye to representativeness. Instead, recruitment was guided by the goal of serving Boards, schools and students thought to be in need. A few invited Boards declined or dropped out, due to a variety of circumstances.

Most participating Boards and schools had average EQAO scores below the provincial average. About 72% of participating schools and about 79% of participating Boards were at or below the average for Grade 3 reading. Then, educators in those schools invited students they deemed to be struggling with early literacy. There was no explicit or systematic criterion for inviting students; educators were asked to use their best professional judgment of student need. Many but not all invited students accepted offers. Boards with space available in their programs accepted some uninvited but interested families. At least one Board's program was so popular that a waiting list was created.

Because participation in the summer programs was non-random and non-systematic, the SLLP should not be used to generalize to the broader population of Ontario children. But these data do represent a sizeable portion of students that are more academically and socially disadvantaged than the Ontario average. Given the unique quality of its measures, the SLLP can be regarded as Canada's best data on summer learning among relatively disadvantaged students.

The Control Group

One key research task was to create a control group. Controls are most useful when they are as similar to the participant group as possible, except for one key variable – participation in the intervention. In true experiments, random assignment is considered the optimal strategy for creating a comparable control group. But when selection into participant and control groups is non-random – as in most educational research – the best strategy is to use sound logic to designate a control group, and then collect rich baseline data on both groups in order to make them statistically comparable. This task is challenging, since researchers must do their best to measure the most important variables, and then ensure that participants and control groups ‘overlap’ on these key measures. In other words, researchers try to ensure that each group has substantial numbers of individuals with similar characteristics. In the SLLP for instance, it was crucial that data were collected on key indicators of existing educational disadvantage, such as previous grades and literacy scores, IEP status, and so on, and that substantial numbers of control students had statistical profiles that were similar to participants.

By necessity, the SLLP protocol for designating and collecting data on the control group was designed retroactively, after Boards, schools, and students had been already recruited into the project. The researchers decided that the most suitable comparison group was the school-year classmates of the summer participants. Those students were exposed to the same pre-summer teachers, schools, and neighbourhoods as the participants. This control group was considered to be best, given that other options were unavailable.⁹

Given these constraints, children in the same June 2010 classes as the summer attendees were designated to be the controls. The research protocol called for the collection of baseline and follow-up data on both groups. Boards collected an array of June data (mostly from report cards, and also STAR data for English Language Boards), social characteristics (mostly from parent surveys), and September data (STAR scores for English Language Boards and GB+ for French Language Boards). The research strategy was to use June data as the baseline, September data as the follow-up, and all other data to adjust for statistical differences between the two groups.

⁹ For instance, some studies of non-random interventions have available data on participants *and* on individuals that were invited but declined or could not participate. Those populations are ideal controls since they, like participants, meet criteria for being invited. Using the SLLP as an example, students who were invited but declined would be an ideal control group because their academic need would be most similar to participants. Unfortunately, Boards did not keep records on families that were invited but declined or could not participate. Another option would be to apply the same criteria used to invite participants into the SLLP, and choose non-participants that meet those criteria as the control group. But the SLLP did not impose on Boards any universal and explicit criteria (e.g. a minimal grade level or DRA score) by which to extend invitations, and so the research protocol could not use any such measures to designate controls.

As discussed below, Boards successfully attracted students in need of a literacy intervention. Summer participants were more disadvantaged than the controls on most educational and social indicators. Fortunately, most of these prior differences between controls and participants were captured by the baseline data. Further, there was a sufficient amount of ‘overlap’ between the controls and participants for these measures. But Boards’ success in recruiting a needy population might have created two limitations for the research. First, some schools appear to have recruited almost all of their most disadvantaged students. When that was the case, there was a less-than-optimal amount of overlap between the controls and participants.¹⁰ Second, some important differences between the participants and controls may have remained unmeasured. Since teachers were instructed to invite students they deemed to be most in need, some of those needs may not have been fully captured in the June baseline data. For instance, during their site visits, regional leads reported witnessing summer students who had behavioural and attention problems. If such problems make students more vulnerable to summer learning loss, and if more participants than controls had these additional vulnerabilities, then the baseline measures would not fully capture participants’ prior disadvantages. As a result, statistical tests could underestimate the effectiveness of the summer programs.

Data Collection Procedures

The SLLP English Language protocol for data collection was complex. It called for the merging of three types of data: measures of student literacy in June and in September, additional baseline information from Boards, and a parent survey. Merging was accomplished by developing a unique student identification number that could identify students in each set of data. The French language protocol involved merging Board data and parent surveys.

Literacy Data

For English Language Boards, the SLLP obtained a license from STAR Reading, an online provider of literacy and numeracy tests. These tests take 10-15 minutes to conduct on a computer, and results are automatically and securely stored on STAR’s mainframe computer. STAR calculates literacy by accounting for each student’s pattern of correct and incorrect answers and each item’s degree of difficulty, and converts a raw score into a series of standardized scores. One of these standardized scores is the Grade Equivalent (GE), which converts scores into grade-month equivalents. For instance, a score of “2.2” indicates a reading level of the average grade 2 student in the second school year month (October); a score of 1.7 represents a reading level of April in Grade One. This score translates literacy into a meaningful metric, and was used to calculate summer learning losses and gains. The

¹⁰ Sometimes this overlap was minimal. One small Board recruited 15 students to its summer program. Compared to the 64 controls, these students were clearly needy, as reflected in June STAR scores. The average summer participant scored in 6th percentile of same-age readers, and the entire group ranged only from the first percentile to the 14th. Thus, even the highest-ranked participant was below 85% of his/her peers. In comparison, the average control student scored in 45th percentile, and the group ranged from the 2nd to the 94th percentile, the full range of student reading ability. Only 13 of the 64 controls overlapped at all with the summer participants on this measure. This illustrates the challenge of finding sufficient overlap between non-randomly selected participants and controls.

SLLP calculated summer learning by subtracting student's June grade equivalent score from their September grade equivalent score (Sept GE – June GE). The measure determines gains and losses that can be interpreted in terms of months. For instance, a summer learning score of +.25 can be interpreted as a gain of two and a half months of literacy. This would indicate that a student's literacy skills kept up with average school year rates. Conversely, any score below zero represents a net summer literacy loss.

The protocol called for all students, both summer participants and controls, to take tests in late June 2010 and then again in early September 2010. Test scores were used to calculate summer learning gains/losses. Also, summer teachers were encouraged to have summer students take additional STAR tests in July and August, though this was not a mandatory component of the protocol.

A total of 3,428 students wrote a total of 7,997 tests. Some students wrote only one test, while some wrote multiple tests. A total of 2,330 students wrote tests in both June and September; this group is the main focus for statistical analysis. Within this group, 601 were summer participants, and 1729 were controls. The other 1,098 students who wrote did not have both June and September tests, and are not fully useful for these purposes. They include those who moved during the summer, who participated in summer programs but were not part of the original June research design, and those who did not complete the research protocol. Among the latter, there were reported instances of schools not be able to temporarily access the STAR website during time devoted to testing, and instances of labour issues hindering the testing.

For French Language Boards, spring and fall GB+ scores were used to measure summer literacy gains and losses. In consultation with French language experts, it was determined that there were no on-line French Language tests that were equivalent to STAR. For a small number of summer attendees, GB+ scores from late August were used in lieu of re-testing those students in early September. Spring scores were received for all 140 students, and fall scores were received for 132 students.

Board Data

Board contacts were asked to collect basic information from student report cards, including gender, grades from the previous school year, attendance, spring PM Benchmark / DRA / GB+ scores, whether or not students attended summer programs, and their attendance in those programs. Among the English Language Boards, data were received for 3,204 students. However, those data varied in quality, as described further below, and ability to match students varied for different measures. The researchers matched 2,757 of those students to STAR tests. Among the French Language Boards, Board data were received for 140 students, 80 of which were summer program attendees, and 60 of which were control cases.

Parent Survey

To collect data on student demographic and family characteristics, the researchers also created a survey that was administered by teachers through Board contacts. The survey measured parents' educational attainment, income, race and ethnicity, country of birth, language use at home, number of children, and other demographics. It also asked parents about their children's out-of-school time, including time spent in structured activities, whether they hired a tutor, leisure activities such as watching television, and activities that directly support educational achievement such as helping children with homework and reading, and being activity engaged with schools.

The return rate for the surveys was impressive. The researchers received 105 completed surveys from the French Language Boards, and matched 95 to Board data. The other 10 surveys lacked a student identification number. The researchers received 1601 surveys from the English Language Boards. Of those surveys, 110 were not usable, and 1491 were matched to Board and STAR data. A small number were unidentifiable (i.e., lacked a student identification number or used a number that did not match STAR or Board numbers). A few surveys appeared to have been completed by parents of children in non-participating classrooms, and some were duplicates (i.e., the same parent had 2 completed surveys).

Supplementary Data

Regional leads also contacted Boards to collect information on several characteristics of each Board's summer programs, including their duration (number of days and hours per day of instruction and recreation), student attendance, and number of teachers and assistants.

Data Quality

The project was not intended to serve a representative slice of Ontario students. Recruitment was not conducted with an eye towards representativeness for the entire population, but rather to serve Boards, schools and students thought to be in need. Boards, schools, and students were invited, but not compelled to participate; some dropped out of the project due to a variety of circumstances, and criteria for student participation varied across sites. As stated above, since these data were not generated from any kind of sampling frame, they are not representative of the broader population of Ontario children, but tend to be skewed towards more disadvantaged students.

Given this non-representativeness, the non-random selection of participants, and the fact that the research protocol was designed *after* participants had been already recruited, the overall quality of data generated by the SLLP was very high. These data are unusually rich and detailed, and are explicitly

designed to measure summer learning gains / losses. To our knowledge, these are the best Canadian data ever collected for these purposes.

One of their strengths is the great variety of collected measures. For students that had complete literacy, report card, and survey data, the program generated an incredible amount of quantitative indicators. The full data set contains hundreds of variables, ranging from a several literacy scores taken at successive points of time, to data on prior grades and attendance, to data on a variety of demographics and family attributes. For reasons of space and time, this report can cover only a fraction of all analyses that are possible with these data.

A second strength stems from the successful implementation of the seasonal learning and quasi-experimental designs. Some previous seasonal learning studies have had to rely on literacy measures that were taken well into the school year, such as spring tests in April or May, and fall tests in October. These studies have Spring-Fall comparisons that are separated not only by 70 summer days, but also by an equal number of school days. These studies must rely on statistical adjustments when attempting to isolate summer from school-year gains and losses, and these adjustments involve a substantial amount of guess work.

In contrast, the SLLP tested students much closer to the summer months. The earliest spring test was taken on June 16; the latest was on June 30 (the final day of the school year). The earliest fall test was taken on September 8, the second day of the 2010-11 school calendar. Over 63% of September tests were completed by September 15, and over 90% of students had written by Sept 27 (a single test was taken on Oct 4). The SLLP can therefore estimate summer gains and losses far more accurately than most other studies, since the majority of days elapsed between spring and fall tests were true summer days. The time elapsed between June and September tests for the average SLLP student was 83 days, 14 of which were school days. Since few schools engage in intensive instruction during the final week of June and during the first school days of September, the average student likely attended only 4-8 instructional school days between tests. SLLP estimates of summer gains and losses are therefore unlikely to be notably contaminated by school year instruction. As a precaution, the lead researchers calculated some statistical adjustments for these school days, but these adjustments had a negligible impact on the results. Teachers, Board contacts, and Cluster Representatives are to be congratulated for implementing this aspect of the research protocol with such precision.

As mentioned above, the French literacy measure was the GB+. The timing of the spring tests ranged from May 10 to June 24. Fall tests were conducted from September 8 to September 30. Some fall test dates were unrecorded, but those tests were likely completed in September, since the researchers received the data in early October. For some summer students, tests from August 27 were substituted for early September tests, since their teachers believed re-testing those students in a short space of time was too burdensome.

The data also have an impressive amount of coverage. By necessity, the number of French language students was small, since the 4 participating Boards were quite small. Given this, the quality of the French Language Board data was quite high, with only some missing data, due mainly to attrition (e.g., students moving over the summer). The response rate of 72% for French language surveys is excellent by the standards of survey research, in which return rates of 20-30% are deemed to be acceptable. Board contacts and the French Cluster lead are to be heartily congratulated for their efforts in eliciting such a high response rate.

The English data are far more plentiful, with combined STAR and Board data on 2,757 students, and combined STAR, Board and Survey data on 1,491 students. The response rate for the English language survey was 50%, which by the standards of survey research is also very high. The English language Board contacts and the Cluster Leads are also to be congratulated.

Statistical Techniques

A variety of statistical procedures were used to analyze these data. To address some simple questions about rates of summer literacy gains and losses, and questions about comparisons between summer participant and control groups, descriptive and inferential statistics are reported, including means, standard deviations, group sizes, and probabilities derived from t-tests. Some bar graphs and box plots (described below) are also used to illustrate key findings. These descriptive data are highly interpretable when reported in meaningful metrics. However, their usefulness is limited for processes that involve multiple variables, since they can only account for a few variables at one time.

To address more complex, multivariate questions about the effects of summer programs, multiple regression, hierarchical linear models, and propensity score matching models were used. Multiple regression models are useful for examining the effects of summer program participation while statistically controlling several attributes of students. Regression analyses proceeded in a series of models, each adding successive blocks of variables. The first block estimated the 'total' effect of summer programs on summer learning that did not control for any other variable. The second block added measures that adjusted the effect of summer programs for student gender and the timing of tests. The third block added measures from student reports cards, including spring PMB/DRA scores, and previous year grades in reading, writing and oral comprehension, attendance and number of days late. The final block added demographic data from parent surveys, including whether or not students had an IEP, and including measures of parental education, language spoken at home, family size, and so on. The strength of multiple regression is its utility for assessing the impact of summer programs while accounting for the great variety of student characteristics. In this report, regression coefficients are reported for summer program attendance across the various models, controlling additional student characteristics. But this technique has three limitations. First, it is not ideal for examining variations in effects of programs across Boards. Second – and this is more of a statistical concern – regression can

provide less than ideal estimates of standard errors in clustered data. Third, the technique can be less than ideal for estimating the causal effect of a treatment, such as a summer program, when the two comparison groups differ considerably, which is often the case when selection processes are non-random, as in the SLLP.

To address the first two limitations, Hierarchical Linear Models (HLM) were used in addition to multiple regression models. HLM is useful when data have two or more levels, in which cases are clustered in upper levels. For instance, educational data commonly consist of information in which students are arrayed across a limited number of schools. HLM can examine whether the impact of summer programs vary across Boards, while using robust standard error estimates that are best suited for clustered data.

To address the third limitation, Propensity Score Matching techniques (PSM) were used to estimate the causal effect of the summer programs. PSM can compensate for non-random selection into participant and control groups better than regression, since it identifies and then matches comparable cases in both groups. In this study, the average treatment effect on the treated (ATT) and the average treatment effect (ATE) are used to estimate the effect size of the intervention. Effect sizes are calculated by dividing the ATT and ATE by the standard deviation of the summer learning measure.

Summary of Findings: Tables and Technical Considerations

This section supplements the discussion of findings in the main report by providing further description, tables and graphs, and further discussion of technical considerations. For reasons of space, this appendix will not exhaustively cover all analyses that were conducted for this report, nor will it reprint all tables and graphs. Any requests for further tables and graphs can be directed to the lead researchers. As in the main report, this Appendix organizes findings by major research questions.

Question 1: Did Expected Patterns of Summer Literacy Gains and Losses Emerge?

For the 2,330 English Language children with complete STAR data (including both participants and controls), the answer to the above question is “yes.” Among these students, 46% experienced some learning loss. About 10% ‘broke even’, receiving the same scores in both June and September. The other 44% had literacy gains over the summer. For many students, the amount of gain or loss was negligible. However, some children had sizeable gains and losses. About 1/3 gained 2 months or more, representing an increase that is on par with school-year learning rates. But at the other end, 37% of children lost 2+ months, and 31% lost 3+ months.

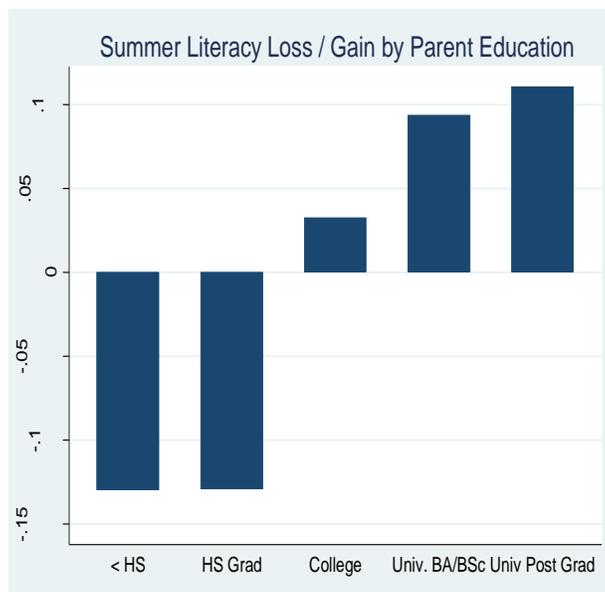
These data suggest that there was a wide range of student fortunes over the summer. Many lost ground, while an almost equal proportion gained ground. Both contributed to a net result: literacy levels among students were more disparate in September than in June. In other words, when students returned from summer vacation, they, as a group, had more aggregate literacy inequality than when

they left. Gaps widened over the summer, when students were not in school. Many returned to school decidedly worse off than when they left.

These data provide unprecedented evidence of summer setback among a large number of Ontario English Language children. While these data should not be generalized directly to the full population of students, they can be used to infer that sizeable amounts of learning loss are likely to be prevalent among more challenged children in the province. As such, these data signal a great need for intervention.

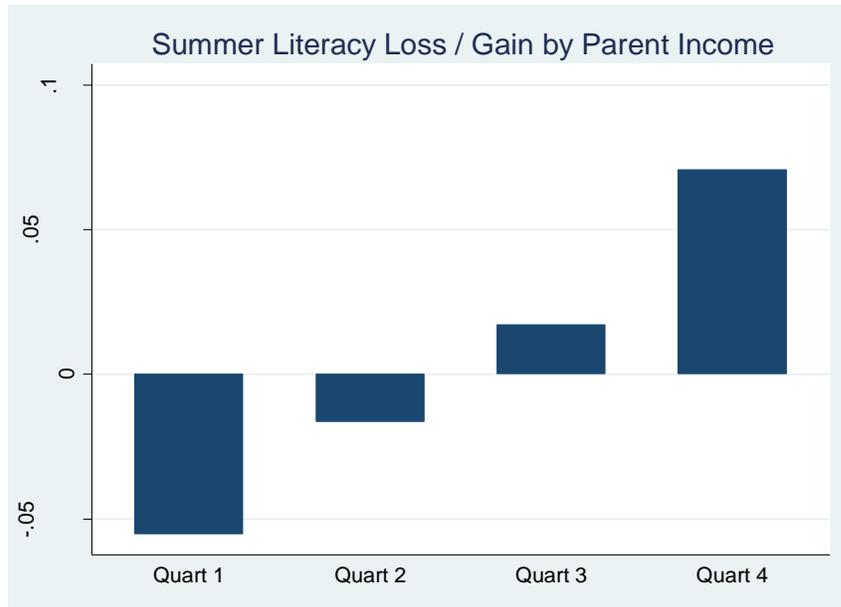
These patterns of losses and gains differ by student’s social characteristics. Figure A1 below shows summer learning by parents’ education. The left-side bars show that children with parents who are high school dropouts and/or graduates lost an average of 1.25 months over the summer. In contrast, children with parents with one/more university degrees *gained* literacy skills. In combination, the total gap between these students widened by 2.4 months over the summer.

Figure A1



A similar trend occurs for family income. Figure A2 presents summer losses and gains for students in families in four income quartiles. Students in the poorest quartile *lost* an average of a half month over the summer, while students in the top quartile *gained* an average of about .75 months. The gap between the lowest and top quartiles thus widened by 1.25 months. If such differentials are compounded over several summers, a profound learning gap will emerge.

Figure A2



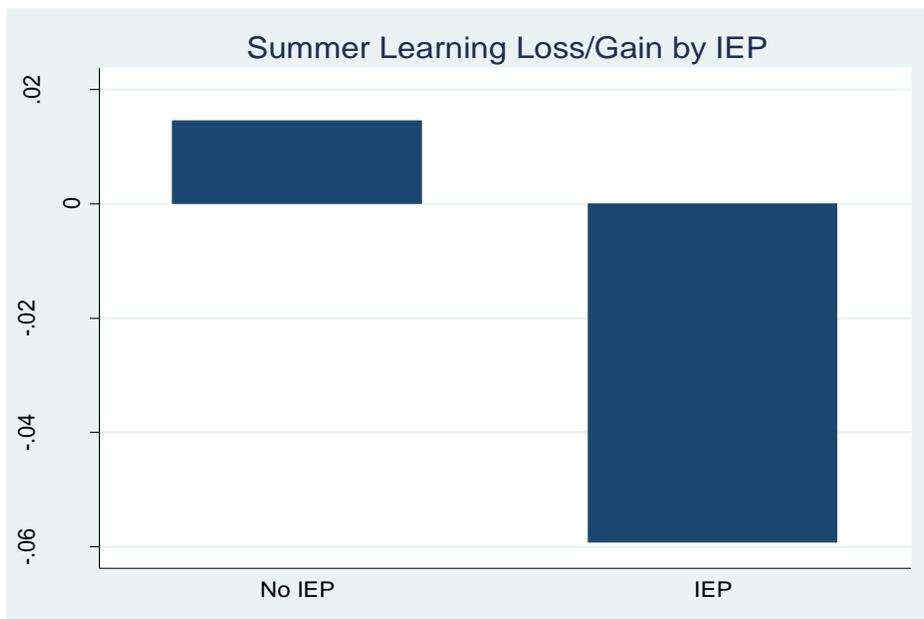
Many educators are also worried about early literacy gaps by gender. EQAO data, for instance, suggests that literacy rates are disappointingly low among young boys. Seasonal learning data may shed some further light on this gap. Figure A3 below shows that the gap widened between males and females over the summer by about 1 month, which if compounded over several summers can lead to a profound disadvantage for many young boys.

Figure A3



Students that face early academic challenges may also be susceptible to summer literacy loss. Figure A4 compares summer learning for students who have and do not have an IEP. It shows that while the average student without an IEP had a small amount of literacy growth over the summer, IEP students lost about .6 of a month, contributing to an overall gap of about .8 months.

Figure A4



Taken together, these four figures reveal clear patterns of summer learning losses by family socioeconomic status, gender, and student ability. They suggest that socially and academically disadvantaged students are susceptible to learning loss, and that literacy gaps among these groups tend to widen over the summer months.

These findings need to be qualified somewhat when data from French-speaking students are examined. Using the GB+, only 7 of 132 students (5%) were measured as having summer learning loss, another 30 'broke even' with zero loss /gain (23%), and the remaining 95 had some gain (72%). These 5% - 23% - 72% figures differ profoundly from the corresponding English Language figures (46% loss, 10% break even, 44% gain). Some of this discrepancy can be attributed to key differences between the student populations, and to key differences in measurement.

First, on average, the French-speaking students tended to have somewhat fewer social disadvantages than their English-speaking counterparts. Tables A1 and A2 in the next section show that French Language controls and participants had higher levels of parental income and education than their English Language counterparts. Second and more important, summer learning was measured differently among the French Language students, both in terms of the instrument and in terms of the

timing of the tests. The relatively low levels of summer learning loss detected by the GB+ are similar to the low levels detected by the PMB among Renfrew students in SLLP Phase One during the summer of 2009. Their common timing is not ideal for detecting learning loss. Neither GB+ nor PMB is regularly implemented near the end/beginning of the school term. The longer time span between the spring and fall test dates for these students meant that their summer learning scores also reflected larger numbers of school days, in addition to summer days. This timing can lead to underestimates of summer learning losses. Another possibility is that the GB+ and PMB may have measurement properties that are less sensitive to relatively small gains and losses. A further possibility is that STAR and PMB/GB+ may measure different aspects of literacy, and that STAR measures those aspects that are likelier to erode over the summer. A final possibility is that the GB+ and PMB detected more gains because Boards' curricula are better aligned with those tests than with STAR.

Question 2: Did Boards Successfully Attract Needy Students?

Both French Language and English Language Boards attracted students who faced considerably more disadvantages than their classmates. Table A1 compares means and tests of hypotheses for summer participants and controls.

Table A1: Means of Prior Characteristics, Summer and Control Students, English Boards

| | Summer Students | N | Other Students | N, Statistical Significance |
|---------------------------------|-----------------|-----|----------------|-----------------------------|
| Academic Characteristics | | | | |
| IEP | 27.0 | 485 | 15.3 | N=744, P<.001 |
| June PMB | 15.0 | 843 | 19.8 | N=1994, P<.001 |
| Reading | 67.1 | 839 | 73.3 | N=2067, P<.001 |
| Writing | 66.2 | 846 | 70.6 | N=2059, P<.001 |
| Oral | 69.5 | 855 | 72.8 | N=2083, P<.001 |
| Days Absent | 4.85 | 812 | 5.02 | N=1587, P<.05 |
| Days Late | 10.6 | 861 | 11.9 | N=1921, P<.01 |
| Grade Level | 1.73 | 736 | 1.90 | N=2258, P<.001 |
| June STAR % | 44.8 | 736 | 58.2 | N=2258, P<.001 |
| June STAR GE | 1.71 | 736 | 2.35 | N=2258, P<.001 |
| Social Characteristics | | | | |
| Male | 55.3 | 910 | 48.6 | N=2136, P<.001 |
| Parent Age | 36.1 | 590 | 36.7 | N=868, P<.05 |
| Parent Education | 4.12 | 626 | 4.39 | N=923, P<.001 |
| Family Income | 3.55 | 523 | 4.17 | N=767, P<.001 |

Table A2: Means of Prior Characteristics, Summer and Control Students, French Boards

| | Summer Students | N | Other Students | N, Statistical Significance |
|---------------------------------|------------------------|----------|-----------------------|------------------------------------|
| Academic Characteristics | | | | |
| IEP | 34.5 | 58 | 13.3 | N=30, P<.05 |
| June GB+ | 14.3 | 80 | 18.6 | N=60, P<.001 |
| Reading | 70.6 | 79 | 73.8 | N=60, P<.001 |
| Writing | 70.1 | 79 | 75.1 | N=60, P<.05 |
| Oral | 72.7 | 79 | 77.7 | N=60, P<.001 |
| Days Absent | 9.7 | 79 | 8.8 | N=60 |
| Days Late | 6.3 | 79 | 4.8 | N=60 |
| Grade Level | 1.75 | 79 | 1.50 | N=60 |
| Social Characteristics | | | | |
| Male | 43.8 | 80 | 46.7 | N=60 |
| French Only | 32.8 | 61 | 45.2 | N=31 |
| Parent Education | 4.74 | 62 | 5.47 | N=30, P<.001 |
| Income | 4.87 | 56 | 5.65 | N=25, P<.05 |

Table A1 shows that among English Language students, summer attendees were significantly more likely to have an IEP, to be male, to have significantly lower June grades, PMB/DRA scores, and STAR scores, and to have less educated, lower income, and younger parents. These are just some of the differences that could be reported between these groups; in tables not shown, summer students were also more likely to be younger (as measured in days), and to have had a shorter duration between their STAR tests (i.e., the controls had slightly more school days between tests). Due to the latter, adjustments for duration between tests were made in subsequent regression analyses.

A similar pattern emerged among French Language students. Table A2 shows that participants were far more likely than controls to have an IEP, and also had significantly lower spring GB+ scores and language grades compared to the controls. Parents of the summer attendees were also, on average, significantly less educated and in lower income categories.

Overall, these data demonstrate that summer programs in both languages attracted needy students, as indicated by measures of prior academic performance and demographics. Boards are to be commended for their success in attracting their target populations. In fact, as discussed in subsequent sections, this very success created analytic challenges. If participants at the start of the summer were much more susceptible to learning loss than the controls, valid comparisons could become difficult.

Question 3: Did Summer Students Gain Literacy Skills over the Duration of their Programs?

One way to assess summer programs is to examine their immediate, short-term impact within the summer months. The research protocol did not require Boards to test students during their summer programs, since the control group was unavailable during those months. Nevertheless, some of the French Boards conducted GB+ testing on the first and final days of their summer programs, and English Boards were encouraged to use the STAR license on the first and final days of their programs if they so wished. Some of the English programs accepted this invitation, and a small sub-set of summer students wrote STAR tests in July and August.

The results from the French Language programs are very encouraging. Among the 66 students with within-summer data, the average boost of GB+ scores was +1.94. Considering the 0 to 30 GB+ scale, and considering the 16.1 mean and 7.6 standard deviation for all June test takers, this increase is quite sizeable, representing more than a quarter of a standard deviation.

The results from the English Language tests are mixed, however. On the one hand, the 291 students in July programs with 'before and after' STAR scores had an average gain of .086 months, which is statistically significant at the .01 level. This gain is comparable to what might be expected during a regular school month, which is encouraging considering that program length varied from 2 to 4 weeks. The July programs served to keep student achievement on pace during a period in which most students would otherwise lose skills or break even. On the other hand, the results were less encouraging for programs that straddled July and August, and programs that occurred in August. The average for the 99 test takers in the former group had a learning loss of a half month, though this result was not statistically significant from zero. Yet, the 223 students in the latter group lost .65 months on average, which was statistically significant from zero. It appears, therefore, that one set of test takers raised achievement significantly, one broke even, and one lost ground.

However, there is a different way to think about these findings, which is elaborated in subsequent sections. This entails shifting conceptions of program effectiveness away from considering only positive gains, to also considering success as the minimizing of potential summer learning losses. Consider this: a population of less advantaged students, such as those with June PMB/DRA scores of 20 or less, had an average learning loss over the summer of -.073. Assuming that losses accrue constantly over both summer months, one can reasonably expect single month losses to be -.0365. With that gauge, the August group's learning loss was not statistically significant from zero.

This set of analysis is limited for drawing conclusions about the effectiveness of English summer programs because only relatively small subsets of students (ranging from 99 to 291) participated in the within-summer testing, and they lacked a control group for comparison. For analyses that avoid these limitations, we turn next to question 4.

Question 4: Did Summer Programs Narrow Literacy Gaps?

This question represents the heart of the analysis of summer programs. It compares learning gains and losses between June and September for both summer attendees and controls. Table A2 summarizes results for both languages. Again, results differ by language of instruction.

Among the French language students, Table A2 shows that summer attendees not only had positive summer gains, but also narrowed the gap with their peers. In June, participants were on average 4.32 GB+ points behind the controls, but by September they were only 2.79 points behind. This represents a 35% narrowing of the gap. Using regression techniques, Table A2 shows that attending summer programs had an unadjusted effect of boosting GB+ scores by 1.19 points over the controls. Since the summer attendees were also academically disadvantaged according to several indicators, adjusting for these variables raised this estimate. And, since summer attendees also had a variety of social disadvantages, such as less educated and less wealthy parents that were less likely to speak only French at home, taking these demographics into account further boosts the estimated effect of the summer programs.

Finally, using propensity score matching models to best compare summer attendees to similar controls yields an estimated effect of summer programs on the treated (ATT) to be 1.60 (a model was chosen that retained the vast majority of cases). Using a standard deviation of 2.07 for summer gains, the effect size of the summer programs is estimated to be 0.77, which is very large by the standards of educational research. This finding should be qualified, however, by noting that large effect sizes are reported more commonly in smaller studies, and that effect sizes tend to be smaller in larger scale studies (as noted by John Slavin). Nonetheless, this is a very encouraging result.

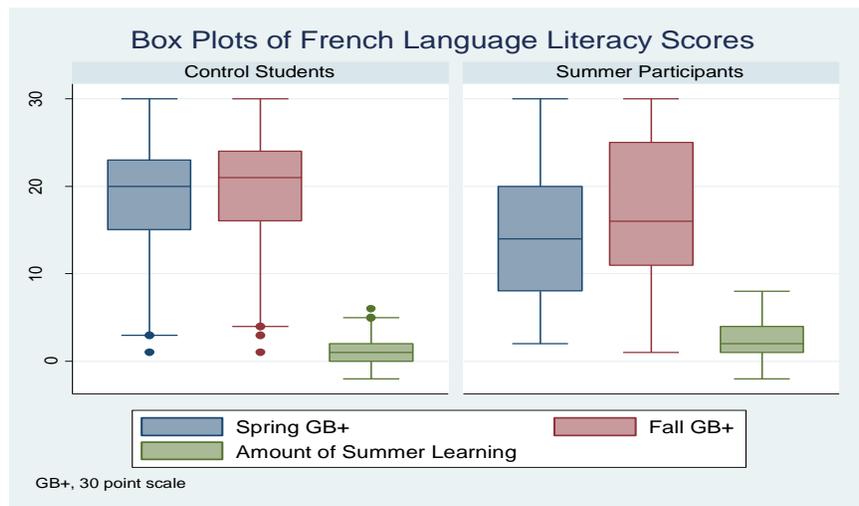
Table A3: Effects of Summer Programs on Summer Literacy Loss/Gain

| | No Controls | Controls for gender, report card data | Additional controls for IEP, Parent Ed, Income, Language use at home | Propensity Score Matching | Effect Size (sd units) |
|---------|----------------|---------------------------------------|----------------------------------------------------------------------|-------------------------------|------------------------|
| French | 1.19 (n=132) | 1.24 (n=132) | 1.78 (n=73) | ATT 1.63 (n=131) ATE 1.13 | +.79 (P<.01) +.55 |
| English | -.074 (n=2330) | -.040 (n=1271) | -.058 (n=495) | ATT -.046 (n=484) ATE .007 | -.07 +.01 |

Note: French results are calculated from differences between Fall and Spring GB+; scores from late August were used for some summer students. The mean summer gain was 1.86, sd=2.07, n=132. English results are calculated differences between September and June Grade Equivalent (GE) scores. The mean was -.016, sd=.644, n=2330.

These results are graphically depicted in Figure A5. These box plots¹¹ compare distributions of scores for both the controls and summer participants. The plots show that summer students were substantially behind their control group peers in June. In fact, program attendees at their upper quartile matched only the median control student. By September, the medians for both groups rose, but the summer attendees rose more substantially.

Figure A5



Turning to the English Language Boards, the story is more complex. These Boards attracted many students to its summer programs who were most susceptible to learning loss. Participants left school in June with a host of social and educational disadvantages, some of which may have been unmeasured. This is dramatized in Table A2. The unadjusted or ‘raw’ estimate for the effect of summer programs in Table 2 is -.074. This means that the initial regression model estimates that program attendees lost $\frac{3}{4}$ of a month of literacy more than the control group. If taken literally, this would mean that summer

¹¹ Box plots summarize entire distributions of students by denoting the minimum score, lower quartile, median, upper quartile, and maximum scores. The “mid-box” depicts the distance between the lower and upper quartiles (i.e., inter-quartile range). The line that divides the mid-box is the median. Tails or whiskers extend from the mid-box to the minimum and maximum values. More extreme values, outliers, are depicted by single dots. For our purposes, box plots can reveal the effectiveness and equitability of summer programs, since they reveal not only averages, but also ranges of typical and atypical cases. For instance, the effectiveness of programs can be deduced by examining the average levels of student scores. Groups with higher average reading scores will have medians and midboxes that are higher or upwards on the vertical scale. But in addition, the equity of programs can be deduced by examining the range of scores. Groups with more equitably distributed reading scores will have short ‘whiskers’, smaller inter-quartile ranges, and few or no outliers. In contrast, scores that are highly unequal would be distinguished by longer boxes and tails, substantial skew, and perhaps outliers that fall below the bottom of the midbox.

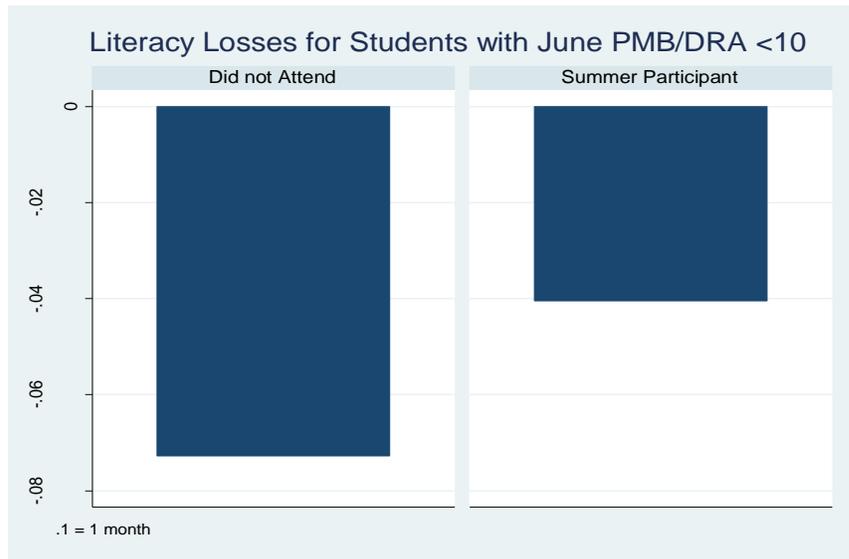
programs actually had a negative effect on students. Such an interpretation would be naïve, however. Taking into some academic measures and gender reduces this negative effect almost by half, to $-.040$. This suggests that after some student characteristics are taken into account, a different picture begins to emerge. Finally, moving to propensity score modeling, the effects are no longer statistically significant (and are actually slightly positive for the average treatment effect [ATE]). Taken at face value, these statistics suggest that participant outcomes were not significantly different from what they would have been without attending summer programs.

How can this unexpected result be interpreted? There are several ways to comprehend these data. First, the “zero” effect represents an average estimate that masks a great range of outcomes among both summer and control students. Among the 601 participants with summer learning data, 50% gained some ground and 20% gained 3+ months. Several Board programs did raise average scores and narrow gaps as hoped, though other Boards were less successful, and brought down the average.

Second, and more important, the results of the participant-control comparisons are misleading if there was a sizeable amount of unmeasured disadvantage among attendees. As discussed in previous sections, teachers invited students they believed were in profound need of an intervention. While some of these students’ problems were surely captured by report card and survey data, some were likely not, such as those involving behavioural and attention difficulties. Measurable differences can be statistically adjusted, but unmeasured differences are more problematic, and may have caused models to underestimate the positive effects of summer programs.

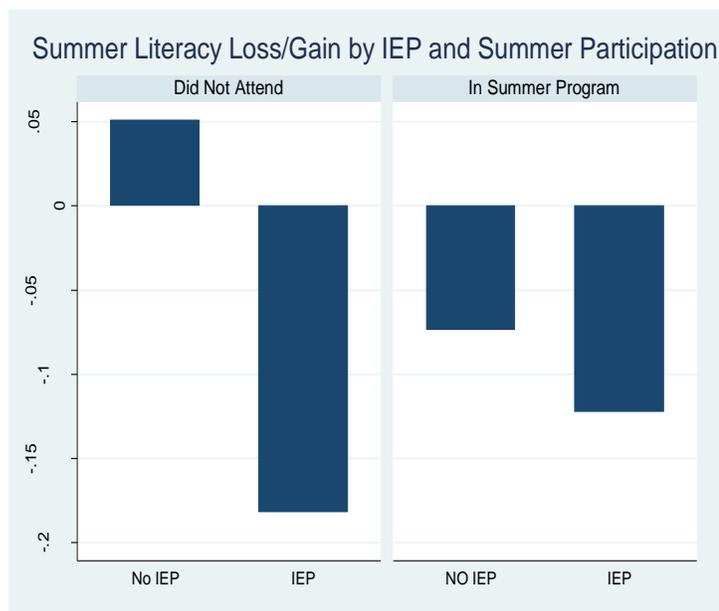
That is very likely to be the case with the English Language SLLP. When specific sub-populations of learners are isolated, it becomes apparent that while participants suffered some learning loss, control students with similar programs had worse losses. Figure A6 compares students with June PMB/DRA scores of less than 10. These readers are in early stages of development, and are prime candidates for summer learning loss. The figure shows that these students indeed lost ground over the summer, regardless of whether or not they attended a summer ground. However, losses were nearly doubly large among control students. This result can be interpreted as indicating that summer programs reduced this potential learning loss among this population of students.

Figure A6



A similar pattern is found in Figure A7, which compares summer learning for students with and without an IEP. Among students without an IEP, the students in the Control Group fared better than participants, but that difference is likely a product of the additional disadvantages faced by participants, who were invited into programs for a range of reasons. But the effect of summer programs is arguably illustrated by comparing the fortunes of control and participant students with an IEP. While participants with IEP's had a summer loss, controls with IEP's had greater losses, nearly twice those of participants.

Figure A7



What these figures illustrate is that standards of program effectiveness may need to shift. While it is reasonable to hope that programs can consistently raise achievement and narrow gaps, it is also important to recognize the value of reducing potential learning loss. If summer programs have students that are highly susceptible to summer loss, minimizing those losses represents a positive and significant impact, even if those students still have a net summer setback. For more severely disadvantaged students, it may be naïve to expect program participants to surpass the summer achievement of their more advantaged peers. Instead, programs should be seen to be effective if they can reduce potential summer losses among at-risk children. The point is that a proper counterfactual – a good estimate of how the same students would have fared without benefit of the intervention – is necessary for sound judgments about the effectiveness of summer programs.

And, along these lines, the potential impact of these interventions needs to be seen in context of the full summer. There were 70 days between the end of 2009-10 school year in June and the first school day of the 2010-11 school year in September. Some SLLP summer programs were only 10 days long, spread over 2 weeks. Students in these programs, therefore, were exposed to 10 days of instruction and 60 days of non-instruction – a ratio of 1:6. Once it is considered that most summer attendees were susceptible to summer learning loss, it is unsurprising that half had a net loss over the summer, despite attending high quality programs. Some students likely made gains over the immediate run of the programs, but lost ground during the remaining summer weeks. In this light, a two week program is a rather ‘small dose’ for a major ailment.

Additional Question: Did Learning Gains/ Losses Vary Among Boards?

A final set of analyses looked at whether learning gains/ losses varied among Boards. Descriptive analyses of means showed that summer students in at least 10 Boards had positive levels of summer literacy growth and narrowed achievement gaps with their control peers. But due to small numbers in some Boards, these figures should be approached with caution, since their reliability is not high. A more general method to address this question is to use Hierarchical Linear Modeling (HLM; this analysis was not attempted among the French Language Boards, due to the small number of those Boards). These models can be used to investigate whether rates of summer learning vary over Boards (by examining random intercepts) and to investigate whether summer program effects vary across Boards (by examining this variable as a random effect). Results show that intercepts did vary significantly across Boards, and that the slope for summer programs also varied significantly across Boards. These results can be interpreted as showing that summer learning rates significantly varied between Boards.

Summary of Data

Decisions were made early in the program to hire six provincial regional leads whose job would be to support geographical groupings of Boards known as clusters. The regional leads became the communication link between the researchers and the District summer program coordinators and superintendents. During the summer months leads also visited the program sites, spending time dialoguing with teachers, parents, community links and students. Invaluable insights were gained through on the ground discussions and observations of classroom interactions. Descriptions of these site visits were shared with the researchers to assist in linking hard data with more subjective findings. During the planning, implementation and wrap up of the SLLP, leads and the researchers attended face to face meetings and participated in teleconferences. This communication offered opportunities to ask questions, share findings and problem solve. The researchers also provided monthly protocols to guide the work of the six regional representatives.

Appendix 3: Secondary Findings: What Parents, Teachers, Students and Program Leads Told Us

The qualitative portion of the study includes three key components. First, the Regional Leads conducted 21 site visits across the province. The Regional Leads documented the programs and materials, conversations with summer program teachers and parents, and their general observations. Second, we also solicited feedback from the summer program teachers. In total 35 summer program teachers answered 11 open ended questions about the program.

Third, the parent survey included one open ended question. We combed through more than 1600 surveys and have included responses from 115 parents. Given the purpose of this report, we excluded responses from parents that were not specifically about the summer program. The timing of the parent survey limited the range of responses. Most of the surveys were administered before the summer program, largely during the month of June. Responses from these parents focused more on their initial reaction to the program and not on their direct experience. However we were able to use their comments to gauge parental demand and support for the program.

To analyze these data, documents were imported into QSR NVivo 8, a software program that aides in the systematic analysis of qualitative data. We initially divided teachers' responses by the eleven questions. We then subdivided these quotes to capture the diversity of their responses to each question. The notes provided by the Regional Leads were less standardized to allow them to draw on their expertise when observing each program. However, the Regional Leads often discussed each program's literacy strategies, the atmosphere and culture of the classroom, and the types of materials or activities they observed. Several site notes also included a general description of the program and classroom as well as any challenges that arose throughout the planning and implementation stages. Several Regional Leads also made suggestions that were based on their conversations with teachers and their direct observations. The parent responses were initially imported and then subdivided into broad themes to capture the variety of their responses.

While we subdivided these quotes to make them manageable for data analysis purposes, we read over all of the documents several times and referred back to them before inserting a quote. This practice attempts to ensure quotes or field notes are placed into context. To respect the confidentiality of the teachers and parents, we have removed their names and any obvious identifiable information.