
Leveled Literacy Intervention (LLI)

Reading Progress for LLI students in the Cambridge MA school district 2009-2010

Introduction

The following report describes reading gains for students enrolled in the Leveled Literacy Intervention (LLI) program in the Cambridge school district in Cambridge, Massachusetts. Cambridge is a small city outside of Boston, located in the northeast region of the United States. The Cambridge school district serves approximately 5,900 students (36% White, 34% Black, and 30% other ethnic background). Out of the total student population, 46% of the students are characterized as low income and 32% of the students are described as English Language Learners.

Data were collected from 24 teachers who agreed to submit individual data forms for their students who participated in LLI during the 2009-2010 school year. The 190 students were from 12 different schools in the district. The completed data forms were sent to the author of this report either by the individual LLI teachers or by a district level contact.

What Is Leveled Literacy Intervention?

LLI is a short-term, small-group, supplementary intervention developed by Irene Fountas and Gay Su Pinnell. LLI is designed to serve struggling readers in grades K-2, although some school districts may use the intervention with older students (see Table 2). LLI is built around the text reading gradient designed by Fountas and Pinnell; this system designates leveled texts from A (the easiest texts) to Z (the most difficult).

LLI is described as a *system* because it includes reading, writing, and word study, each used together and systematically across increasingly difficult levels of texts. Three LLI systems currently exist:

- Orange, recommended for Kindergarten, levels A to C;
- Green, recommended for Grade 1, levels A to J; and
- Blue, recommended for Grade 2, levels C to N.

The K-2 LLI systems are designed to provide 14 to 20 weeks of daily, intensive extra reading lessons (beyond classroom service) that result in accelerated progress with flexible decision making about student entry and exit. Students enrolled in LLI participate in daily (five times per week), 30-minute literacy lessons taught by an LLI trained teacher. The recommended group size is three students at a time with one teacher to allow for close observation and differentiated response to student strengths and needs. Because of restrictions or limited resources, some school districts may alter these requirements but the goal of 1:3 and 5 lessons per week is highly recommended for the strongest outcomes.

The objective of LLI is to help students reduce the gap between their current instructional reading level and their expected instructional reading level.

The intended term of the intervention ranges from about 14 to 18 weeks after which time the students are released if approximate grade level expectations are met. At the end of this time period, students who

have made progress but do not yet meet expected instructional reading levels for grade and time are re-evaluated. The evaluation may suggest more time in LLI lessons or an alternative intervention (such as individual tutoring). Students who have not received a full program of services and are in the intervention at the end of the school year may continue to receive service at the beginning of the next school year. Some students who are taken in to the intervention may have achievement levels more than a year below grade level. Though grade level performance may not be achieved in the short term, if resources allow for service to continue, steady progress may warrant longer term service.

LLI Teachers

Data were voluntarily reported on 190 LLI students taught by 24 LLI teachers in 12 schools in Cambridge. The LLI systems were new to many of these teachers.

Within the LLI Systems, lesson guides, professional development tutorials and DVD examples of lessons are provided. Most of the Cambridge LLI teachers received their LLI training in their district. Some teachers were also trained by Lesley University or by another source (see Table 1).

Training Source	% of Teachers
District	25.0% (n=6)
Lesley University	20.8% (n=5)
Other	16.7% (n=4)

Table 1. Source of LLI Teacher Training.

The LLI teachers reported serving a variety of roles in their schools including classroom teacher, Early Childhood Resource Specialist, Reading Recovery teacher, and Reading teacher. The LLI teachers received 18.0 hours or just over 2 days, on average, of LLI training (*range*: 8-44, *SD* = 10.5). In addition, 50.0% of the teachers were trained in Reading Recovery, an individual tutoring approach that offers intensive literacy intervention for first graders (see whatworksclearinghouse.com).

Student Characteristics

Data were submitted for 190 kindergarten through fifth grade students. Of the total group, 53.7% were male and 40.5% were female, 39.5% were Black, 23.7% were White, 12.1% were Hispanic, 8.4% were Asian/Pacific Island, and 5.3% were Multi-Racial. As an indication of students' economic status, information on free/reduced lunch was collected and 56.3% fell into this category. In addition, 27.9% of the children were English Language Learners. Refer to Table 2 for a summary of the LLI student sample size by grade and refer to Table 3 for a summary of the student demographics.

Student Sample Size					
Kindergarten	1 st Grade	2 nd Grade	3 rd Grade	4 th Grade	5 th Grade
15.3% (n=29)	31.6% (n=60)	33.7% (n=64)	8.4% (n=16)	4.7% (n=9)	2.1% (n=4)

Table 2. Student Sample Size.

Student Demographics								
% Male	% Female	% Black	% White	% Hispanic	% Asian/ Pacific Island	% Multi- Racial	% English Language Learners	% Free/ Reduced Lunch
53.7% (n=102)	40.5% (n=77)	39.5% (n=75)	23.7% (n=45)	12.1% (n=23)	8.4% (n=16)	5.3% (n=10)	27.9% (n=53)	56.3% (n=107)

Table 3. Student Demographics.

Of the total group of LLI students, 6.8% ($n = 13$) had individualized education plans that mandated that they receive support for Reading and 16.8% ($n = 32$) of the LLI students had an IEP for other support services including behavior, OT, PT, speech and other categories. Reading Recovery (RR) services were provided to 31.6% ($n = 60$) of the students prior to entering LLI. Of those LLI students who had RR attendance data available, the students received an average of 72.2 RR lessons ($n = 22$, *range*: 36-110, *SD* = 16.2) and 13.7% ($n = 26$) of them successfully discontinued from Reading Recovery prior to entry to LLI. While we did not ask the LLI teachers why students who had successfully discontinued from RR were subsequently placed in LLI, it is possible that these students required additional support to build confidence, fluency or other skill areas.

Results – Reading Progress

Below is a summary of the reading progress of 190 students who received LLI during the 2009/2010 school year in the Cambridge school district in Cambridge, MA. Of the total group, two of the LLI students did not complete the full set of sessions offered to them because they moved or withdrew early and thus, their data were eliminated from the analyses reported below. Furthermore, some of the data submitted by the LLI teachers contained missing or incomplete information. The reported results below also exclude cases with missing data.

LLI Groups and Student Attendance

LLI was designed to be delivered in a group of three students with one teacher, five days per week; however, the delivery of LLI in Cambridge varied. Overall, each of the LLI groups was comprised of between 1 and 4 students ($M = 2.9$, $SD = .7$) and the groups met between 1 and 5 days a week ($M = 4.2$, $SD = .7$) for 30 minutes per session (see Table 5). Additionally, 92.6% of the LLI students received additional small group reading instruction in their classrooms (*range*: 1-5, $M = 3.9$ lessons per week, $SD = .9$).

The LLI students who completed the full set of LLI sessions offered to them and for whom attendance information was available received LLI for an average of 13.6 weeks (*range*: 3-33, $SD = 6.3$) and they attended an average of 42.5 LLI lessons (*range*: 8-107, $SD = 19.7$) (see Table 5). It should be noted, however, that many students were not able to receive the full intervention as the school year ended and their LLI teachers indicated that they would receive more LLI the following year.

Reading Progress

The data were collected and reported for LLI students only. No control group was identified and assessed and therefore, the Cambridge MA LLI student growth was compared to Fountas and Pinnell grade level criteria (see Table 4) to assess the group's progress. Each student's reading gain was determined by

looking at their pre- and post- LLI instructional reading levels (ranging from Pre-A to Z) which are based on the Fountas and Pinnell leveled text system.

- Obtaining Fountas and Pinnell Instructional Reading Levels**
 The F&P instructional reading levels were obtained through the teachers' reports of their students' instructional reading levels which were determined by administration of the Fountas and Pinnell Benchmark Assessment System or by the conversion to F&P levels of the teacher's reports of their students' score on other reading assessments.
- Conversion to Time Equivalent (TE) Score**
 Once each child's instructional level at entry and exit was obtained, the levels were converted to a Time Equivalent (TE) score which represents the number of months of school a typically progressing student is expected to have completed when they demonstrate the reading behaviors associated with each level according to Fountas and Pinnell guidelines. The TE scores represent the number of months the student was in school and are based on a ten month school year because children are not in school for two months of each year. If an instructional reading level is expected over more than one month, the TE score reflects the middle point of the expected band of time that the particular level is expected (see Table 4). For example, level C is expected at months eight, nine, and ten during Kindergarten and the time equivalent for level C is month nine.
- Calculating Reading Gain**
 The difference between the entry and exit TE score reflects the gain (number of months of progress) the student made between entry and exit from LLI. For example, a student who enters LLI at level A and exits at level C has progressed from what is expected in the fourth month of Kindergarten to what is expected in the ninth month of Kindergarten and thus, the student's reading gain is five months.

Fountas and Pinnell Instructional Level Expectations for Reading and Time Equivalent Scores (months) for each Level										
	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10
Kindergarten	Pre-A TE=2	Pre-A TE=2	Pre-A TE=2	A TE=4	A/B TE=5	B TE=6.5	B TE=6.5	C TE=9	C TE=9	C TE=9
1st Grade	C/D TE=11	D TE=12	E TE=13	E/F TE=14	F TE=15	G TE=16	G/H TE=17	H TE=18	I TE=19.5	I TE=19.5
2nd Grade	I/J TE=21	J TE=22.5	J TE=22.5	J/K TE=24	K TE=25	K/L TE=26	L TE=27.5	L TE=27.5	M TE=29.5	M TE=29.5
3rd Grade	M/N TE=31	N TE=33	N TE=33	N TE=33	O TE=36	O TE=36	O TE=36	P TE=39	P TE=39	P TE=39
4th Grade	P/Q TE=41	Q TE=43	Q TE=43	Q TE=43	R TE=46	R TE=46	R TE=46	S TE=49	S TE=49	S TE=49
5th Grade	S/T TE=51	T TE=53	T TE=53	T TE=53	U TE=56	U TE=56	U TE=56	V TE=59	V TE=59	V TE=59

Table 4. Fountas and Pinnell Instructional Level Expectations for Reading and Time Equivalent Scores (months) for each Level.

Overall, the LLI students progressed an average of 7.4 months ($n = 168$, $SD = 4.6$) from entry until exit from LLI. This growth was achieved during participation in LLI for an average of 13.6 weeks. It should be noted

that while the LLI teachers strived to provide all scheduled LLI lessons each week, vacation and absentee days often made this impossible. In spite of this, the LLI students progressed an average of more than seven months in just under 14 weeks or approximately 3 ½ months. In addition, at all grade levels except kindergarten, the LLI students moved forward at an accelerated pace when compared to typical reading progress over time according to Fountas and Pinnell guidelines (see Table 5 and Chart 1 below).

All LLI Students: Average: Number of Students in Group, Number of Weeks of LLI, Number of LLI Lessons per Week, Number of LLI Lessons, Student Growth					
	Average # of Students in Group	Average # of Weeks of LLI	Average # of LLI Lessons Per Week	Average # of LLI Lessons	Average Student Growth in Months
Kindergarten	M = 3.3 n = 29 SD = .5	M = 11.5 n = 29 SD = 3.5	M = 4.1 n = 29 SD = .6	M = 33.9 n = 29 SD = 10.0	M = 4.3 n = 23 SD = 2.2
Grade 1	M = 3.0 n = 56 SD = .6	M = 12.6 n = 56 SD = 5.7	M = 4.3 n = 56 SD = .7	M = 43.2 n = 53 SD = 18.8	M = 6.6 n = 55 SD = 3.9
Grade 2	M = 2.9 n = 64 SD = .6	M = 16.7 n = 63 SD = 7.6	M = 4.2 n = 63 SD = .6	M = 48.6 n = 60 SD = 23.2	M = 8.9 n = 62 SD = 4.9
Grade 3	M = 2.9 n = 15 SD = .7	M = 11.1 n = 15 SD = 3.6	M = 4.4 n = 15 SD = .7	M = 38.4 n = 15 SD = 21.3	M = 8.6 n = 15 SD = 6.0
Grade 4	M = 3.2 n = 9 SD = 1.0	M = 10.7 n = 9 SD = 1.9	M = 3.7 n = 9 SD = .9	M = 31.3 n = 9 SD = 4.2	M = 6.7 n = 9 SD = 3.6
Grade 5	M = 3.0 n = 4 SD = 0	M = 11.5 n = 4 SD = 1.0	M = 4.3 n = 4 SD = .5	M = 47.0 n = 4 SD = 8.2	M = 9.9 n = 4 SD = 4.4
Grades K-5	M = 3.0 n = 177 SD = .6	M = 13.6 n = 176 SD = 6.3	M = 4.2 n = 176 SD = .7	M = 42.5 n = 170 SD = 19.7	M = 7.4 n = 168 SD = 4.6

Table 5. Average Number of Students in Group, Average Number of Weeks of LLI, Average Number of LLI Lessons per Week, Average Number of LLI Lessons, and Average Student Growth in Months, by Grade.

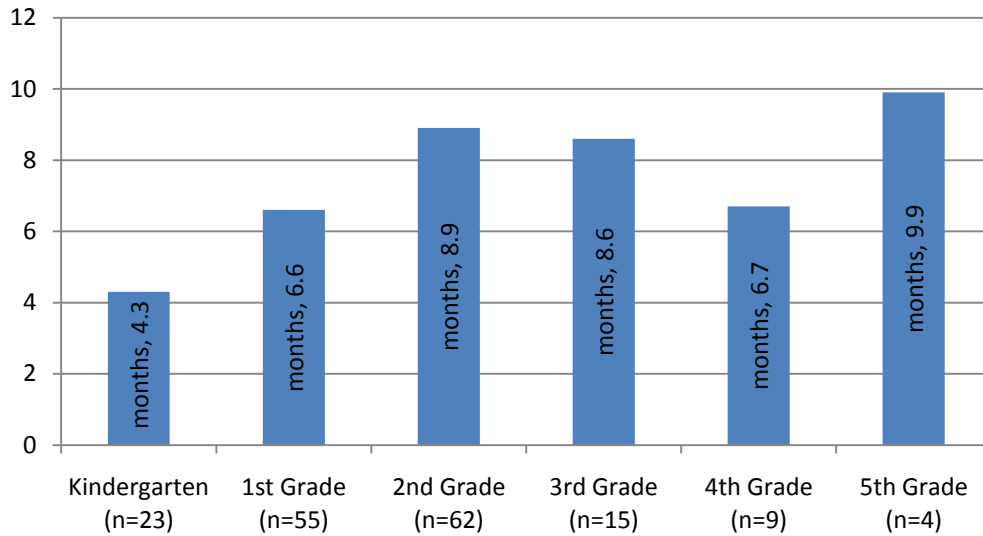


Chart 1. Student Growth (in months) by Grade (n=168)

The instructional reading level gain for the LLI students is depicted in Chart 2 below. 61.3% of the LLI students demonstrated an instructional reading level at least three levels higher than their pre-LLI level and 11.9% raised their reading skills seven or more levels, which in all grades represents more than a year's progress (see Chart 2).

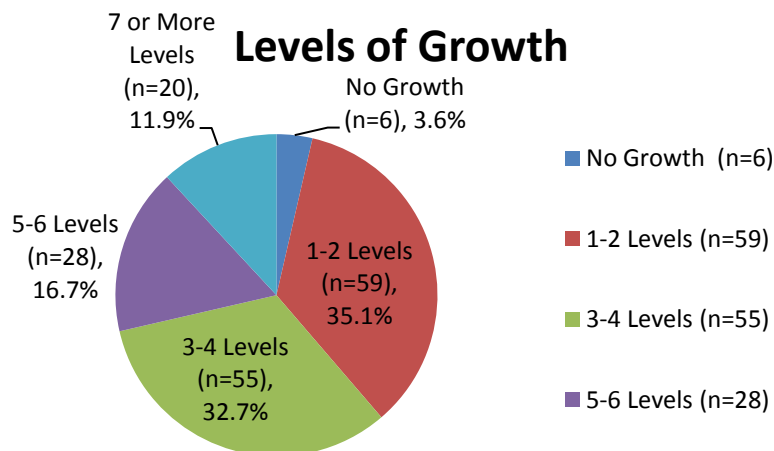


Chart 2. Levels of Growth (n=168).

Grade Level Attainment

The percentage of students who were below grade level or at or above grade level at entry and exit from LLI is depicted below. Overall, 63.9% were at or within one text reading level of their expected instructional reading level when their LLI instruction ended (see Table 4 and Chart 3); and 74.6% were at or within two text reading levels of grade level expectation. These results indicate accelerated progress even if students only closely approached expected grade level reading.

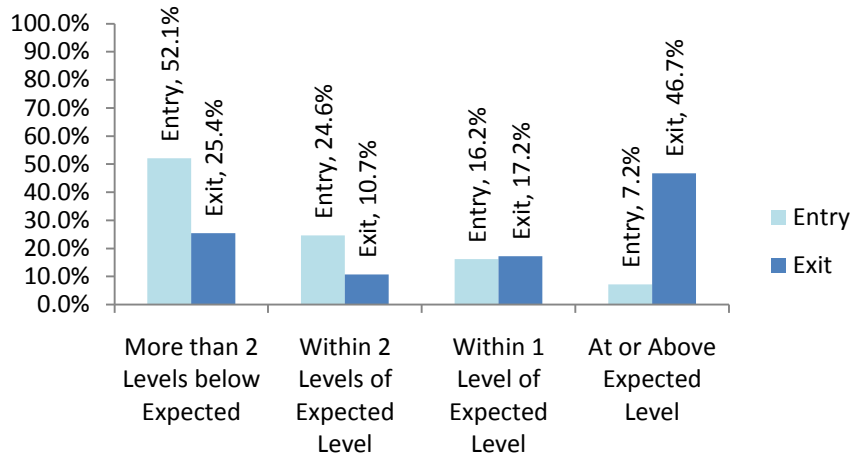


Chart 3. Instructional Reading Level at Entry (n=167) and Exit (n=169).

Key Findings

- On average, the LLI students demonstrated reading progress over the span of time they participated in the intervention which is comparable to expected reading progress over 7.4 months during the school year. This progress was achieved during participation in LLI for an average of 13.6 weeks or approximately 3 ½ months.
- Post-LLI, 61.3% of the LLI students demonstrated an instructional reading level at least three levels higher than their pre-LLI level and 11.9% raised their reading skills seven or more levels.
- Post-LLI, 63.9% of the LLI students were within one text reading level of grade level expectation.

Conclusions

Results of this evaluation indicate that as a group, the 190 Cambridge School District struggling readers who received Leveled Literacy Intervention supplementary instruction in Cambridge, Massachusetts demonstrated accelerated progress over the period they received LLI; on average the LLI students made twice the amount of reading progress when compared to typical reading progress over time (Fountas and Pinnell 10 month guidelines). In addition, only a very small percentage made no growth and more than half of the students made significant progress. Furthermore, post-LLI, more than half of the LLI students reached were within one text reading level of their grade level expectation according to the Fountas and Pinnell guidelines (see Table 4).