



Total Immersion Programs: Assessment Data Demonstrate Achievement in Reading and Math

By Dr. Lysianne Essama, Principal, John Hanson French Immersion School,
Prince George County Public Schools, Oxon Hill, Maryland

Introduction

Assessments and evaluation of French immersion students' performance at Maryvale Elementary in the Montgomery County (MD) Public Schools

Throughout the years several standardized tests have been used to assess the achievement level of the students in the French Immersion Magnet Program of the Montgomery County (MD) Public Schools (MCPS). Unfortunately most of these tests are written in English and are given to the students as early as second grade, two years before they receive instruction in English Language Arts. Add to that, both French immersion programs are housed in regular public schools and the scores of the immersion population are embedded within the scores of each school, not reported separately as a subset. During the 1999-2000 school year, the first database, which grouped results of one of the schools, the Maryvale French immersion population, was created. A report about the students' achievement was presented to the MCPS Superintendent. The purpose of this separate report was to use the information to advance the academic performance of students in the French immersion program and to improve the quality of teaching and learning in immersion programs in general.

Three different standardized tests were given to all MCPS students:

The TerraNova Comprehensive Tests of Basic Skills (CTBS) is a nationally normed assessment which provides comprehensive measurement of basic skill achievement in five areas: reading, language, mathematics, language mechanics and mathematics computation. It is given in grade 2.

The Maryland School Assessment (MSA) is a test of reading, math, and—eventually—science achievement. This test provides educators, parents, and the public valuable information about student, school, school system, and state performance. The test assesses the Maryland content standards in mathematics and reading. The test is administered annually to students in grades 3 through 8. The test includes both multiple-choice and short-essay questions.

Measure of Academic Progress - Reading (MAP-R) is a computer-adaptive achievement test that quickly provides an assessment of a student's skill level in different reading achievement areas such as phonological awareness, vocabulary and comprehension. It is given in English starting in grade 3.

Analysis of Maryvale French Immersion Student Performance

Maryvale Student Population

Table 1 below compares the K-5 French immersion student population to the neighborhood population that is schooled solely in English (English program). African-American and African students are grouped together under the label “Black students.” The right-hand column presents data for the total K-5 population at Maryvale Elementary.

Table 1: Demographic Comparison of French Immersion and English-Medium Programs

Breakdown by Ethnicity	English Program		Immersion Program		Whole School	
	<u>N</u>	%	<u>N</u>	%	<u>N</u>	%
Black Students	72	31.4%	60	21.6%	132	26%
White Students	32	14%	168	60.4%	198	39.2%
Hispanic Students	86	37.6%	24	8.6%	112	22%
Native American Students	1	0.4%	2	0.8%	3	.6%
Asian Students	38	16.6%	24	8.6%	62	12.2%
Total Number of Students	229	100%	278	100%	507	100%
Breakdown by Gender						
Male Students	110	48%	100	36%	208	41%
Female Students	119	52%	178	64%	299	59%
Total Number of Students	229	100%	278	100%	507	100%

Standardized Test Data Analysis for Maryvale French Immersion Students

1. Comprehensive Tests of Basic Skills (CTBS)

The CTBS test results were analyzed over a period of six school years from 1999 through 2005. Between the first and second year of the study the number of students tested in Grade 2 almost doubled from 23 (in 1999-2000) to 43 (2000-2001). This corresponds to the completion of the French immersion reconstruction program initiated in 2000 after the transfer of half of the Maryvale French immersion population to Sligo Creek Elementary School in 1999.

Tables 2 and 3 below show the percentage of students who scored greater than or equal to the 50th percentile and, among them, the percentage of students who scored over the 75th percentile. For example, in 2003 in math, 92% of our French immersion students were above the 50th percentile. Seventy-three percent of them were over the 75th percentile. These achievement data averaged

Table 2: Grade 2 Students with CTBS Rank Greater Than or Equal to 50th National Percentile

	2000	2001	2002	2003	2004	2005	Average
Number of Students Tested	23	43	45	48	54	49	44
Reading	57%	42%	47%	75%	69%	59%	58%
Math	87%	67%	69%	92%	89%	88%	82%
Language Mechanics	70%	21%	44%	67%	56%	59%	53%
Math Computation	83%	72%	84%	98%	98%	84%	86%
Language	65%	28%	49%	65%	59%	49%	53%

across six years of testing in English indicate that MCPS French immersion second graders are performing at or above grade level in Reading, Language Arts and Math. Moreover, slightly more than one fourth of these students are achieving at or above the 75% national percentile in reading and well over half are at this level or above in Math. These data also clearly show that students are more readily able to demonstrate achievement with this English-medium tool when the test is measuring Math skills as opposed to Reading skills.

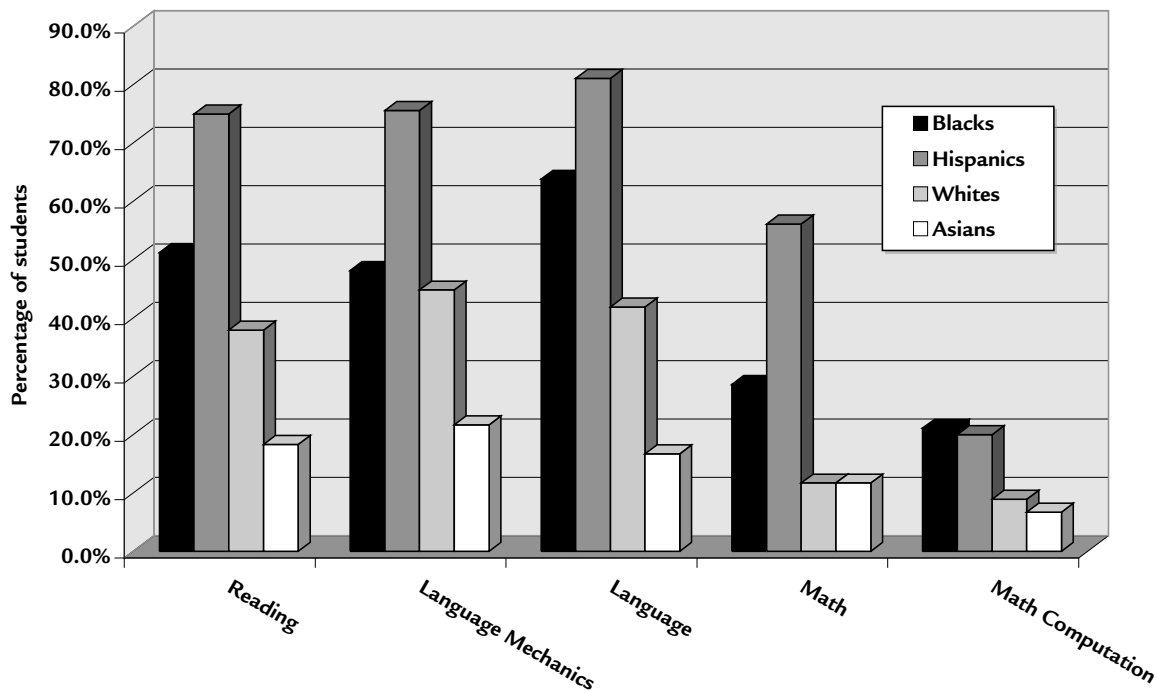
Table 3: Grade 2 Students with CTBS Rank Greater Than 75th National Percentile

	2000	2001	2002	2003	2004	2005	Average
Number of Students Tested	23	43	45	48	54	49	44
Reading	26%	28%	24%	35%	41%	35%	32%
Math	65%	49%	31%	73%	69%	71%	60%
Language Mechanics	43%	7%	24%	33%	30%	33%	28%
Math Computation	74%	58%	67%	96%	80%	69%	74%
Language	22%	14%	20%	42%	31%	22%	25%

CTBS Achievement Performance Gaps Relative to Ethnic Background

Figure A below shows French immersion student achievement results disaggregated by ethnic heritage. The averaged percentage (from 2000 to 2005) of various student groups that scored below the 50th National Percentile is displayed. There are clear ethnicity-related gaps in the CTBS test for Grade 2 French immersion students. Ethnicity gaps are relatively smaller in Math and Math Computation when compared to results in English language-related tests. In terms of English language performance, more than three-fourths of Hispanic students are assessed as below the 50th National Percentile; whereas about half of Black students, 2 out of 5 Caucasian students, and less than 1 out of 5 Asian students are performing below the national average for second graders.

Figure A: Grade 2 Students Who Scored Below the 50th Percentile on the CTBS, 2002-2005



2. Maryland School Assessment (MSA)

The MSA test results were analyzed over a period of four school years. Students are given one of three possible level indicators: basic, proficient or advanced. In 2003 (baseline year), only Grade 3 and Grade 5 students were tested in Reading and Mathematics, so the graphs in Figures B and D display cross-sectional data for these two grade levels for all four years. Figure C contains cross-sectional data for grade 4. Baseline data for this grade is in 2004. As mentioned earlier, the number of students tested in Grade 5 notably increased from 18 (in 2003) to 42 (2005) due to the completion of the French immersion reconstruction program.

Figure B: Comparison of Grade 3 Student Performance

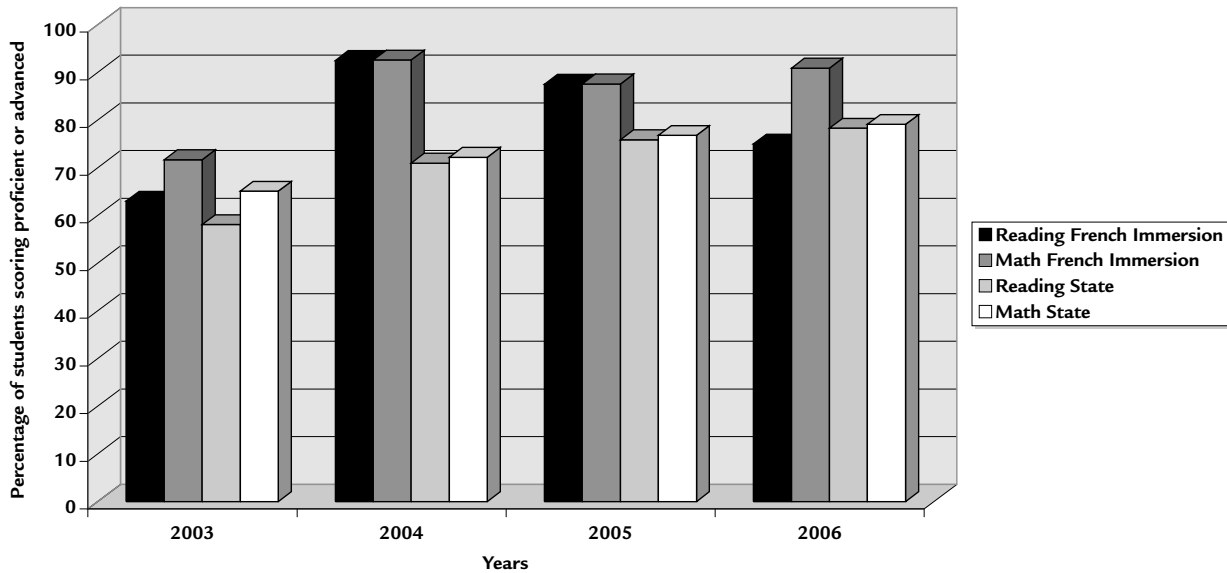


Figure C: Comparison of Grade 4 Student Performance

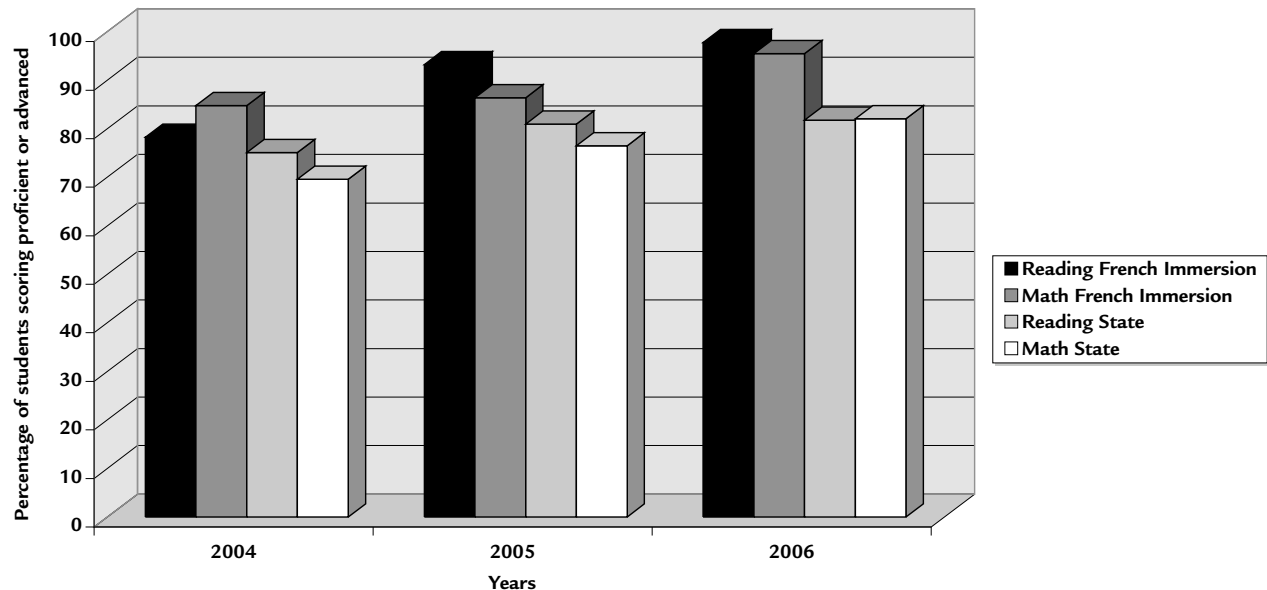
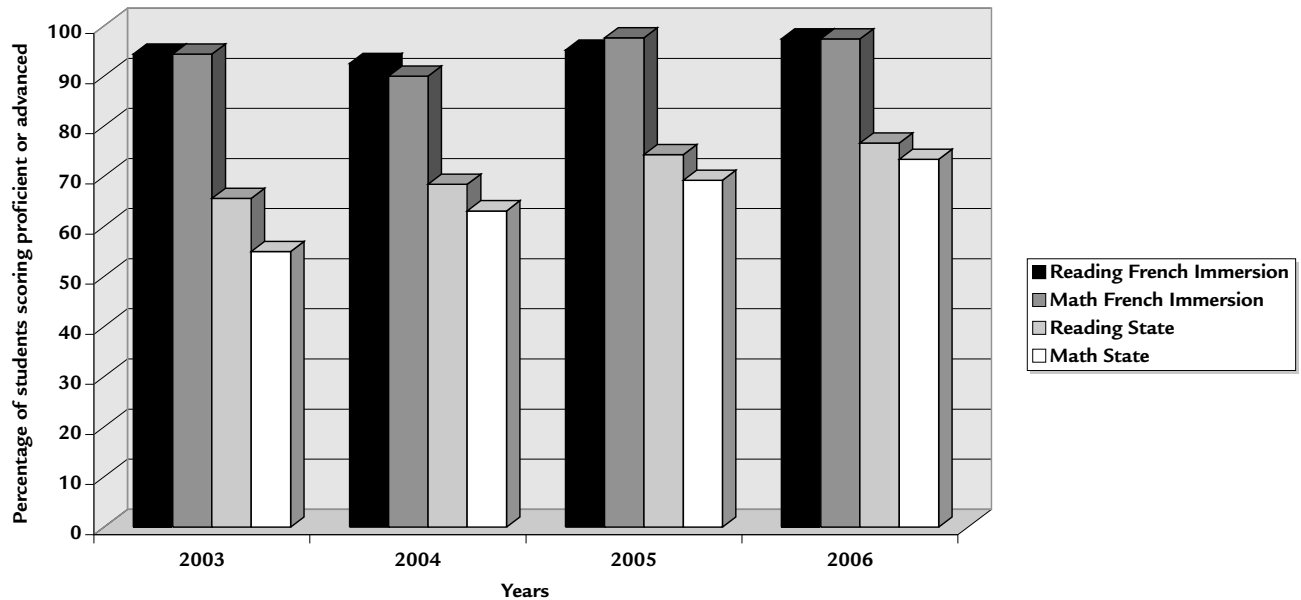


Figure D: Comparison of Grade 5 Student Performance

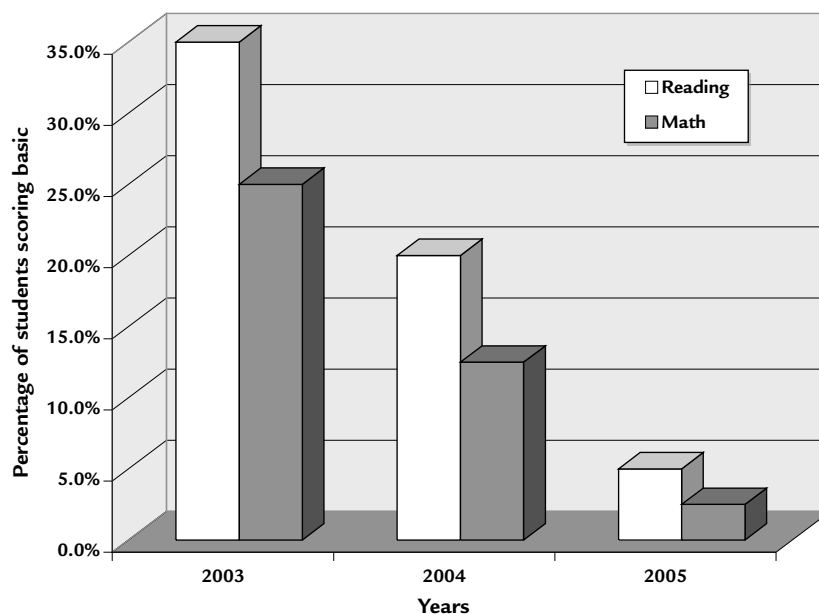


The average French immersion student scores higher than the average student in the state in Math and in Reading even in Grade 3 where English Language Arts instruction has not started yet in the French immersion program. In Grade 5, French immersion students score about 20% higher on average than students in the state.

A Longitudinal Look: Following the Same Students Across the Grades

To gauge program efficiency, we have tracked the performance of the same group of students over three years from Grade 3 (in 2003) through Grade 5 (in 2005) when they graduated (see Figure E). In our assessment we wanted to know if French immersion children are moving

Figure E: Longitudinal Comparison of Reading and Math Performance



from one performance level to a higher performance level, e.g., from Basic to Proficient Level. Specifically we wanted to know how many children were remaining in Basic Level both in Reading and Mathematics. As shown in figure E, the number of students reported to be at Basic Level in Reading went from slightly more than one-third in Grade 3 to a much reduced 5% in Grade 5. In Mathematics students' improvement between Grade 3 and Grade 5 was even more impressive. At grade 3, one-quarter of Maryvale French immersion students performed at the Basic Level and in Grade 5 only 2.5% of these students remained at this level, the rest having moved up to either Proficient or Advanced Levels.

Most of the students who were in grade 2 in 2003 (see Tables 2 and 3 above) were the same students who were in grade 3 in 2004, in grade 4 in 2005 and in grade 5 in 2006 (see also Figures B-D). It seems remarkable that students who have received little to no instruction in English are able to demonstrate their reading and math achievement in English already in grade 2 and continue to improve up and through their elementary years.

MSA Achievement Performance Gaps Relative to Ethnic Background

Standard deviation (SD), a statistic that can tell you how spread out or how tightly a given population clusters around the mean (average score in a set of data), is also commonly used as a more informative way of comparing means of two groups. The closer the SD is to 0.0, the less the difference between the two groups.¹ Tables 4 and 5 display data using SD to compare the academic performance of various ethnic subgroups of French immersion students to the overall SD calculated for the entire French immersion student group. For example, if we look at grade 4 White students in math (see Table 5 below), the 0.13 SD comparison indicates that the mean score of this group of students was slightly (0.13 standard deviations) higher than the mean score for all grade 4 French immersion students that year.

Table 4: Longitudinal Performance Comparisons for Reading

READING	2003 Grade 3		2004 Grade 4		2005 Grade 5		
	N	X Bar	SD	X Bar	SD	X Bar	SD
All Students in French Immersion	41	423	48*	405	38*	433	33*
Black Students in French Immersion	7	413	-0.21	389	-0.42	431	-0.06
Hispanic Students in French Immersion	4	340	-1.73	340	-1.71	380	-1.61
White Students in French Immersion	28	422	-0.02	409	0.11	432	-0.03
Asian Students in French Immersion	2	440	0.35	418	0.34	445	0.36

N = Number; X Bar= Mean; SD = Standard deviation

** Overall standard deviation reported as number of points. The total point range for the MSA in Reading is 340–529 in 2003, 320–493 in 2004, and 361-557 in 2005*

¹ If one assumes a normally distributed population, then about 68 % of the values are within 1 standard deviation of the mean (can be either positive, +1 or negative, -1), about 95 % of the values are within two standard deviations (again either +2 or -2) and about 99.7 % lie within 3 standard deviations (+3 or -3). If the SD is a positive number, the corresponding group performed better than the comparison group, on the other hand, if the number is a negative value, it performed less well than the comparison group.

Disaggregated MSA test results for 2005 show a relatively small test score difference among subgroups of Maryvale French immersion students with the exception of Hispanic students who perform relatively poorly, -1.6 SD and -1 SD below the French immersion average respectively in Reading and Mathematics in Grade 5. In Reading, the average of grade 5 Black and White students is only slightly below the total French immersion student average, -0.06 SD and -0.03 SD respectively. Asian students perform better in reading as a group with 0.36 SD above average. In Mathematics, the performance difference across ethnic groups is a little greater, especially in Grade 5. The average for Black students in Grade 5 is -0.45 SD below the total French immersion average, while the average of White and Asian students is 0.17 SD above. In response to these findings, a separate report was written detailing strategies that can be used to improve Hispanic students' performance in the program.

Table 5: Longitudinal Performance Comparisons for Math

MATH	2003		2004		2005		
	Grade 3		Grade 4		Grade 5		
	N	X Bar	SD	X Bar	SD	X Bar	SD
All Students in French Immersion	41	403	44*	429	31*	446	29*
Black Students in French Immersion	7	397	-0.14	418	-0.35	433	-0.45
Hispanic Students in French Immersion	4	330	-1.66	362	-2.16	417	-1.00
White Students in French Immersion	28	401	-0.05	433	0.13	451	0.17
Asian Students in French Immersion	2	421	0.41	436	0.23	451	0.17

N = Number; X Bar = Mean; SD = Standard deviation

** Overall standard deviation reported as number of points. The total point range for the MSA in Math is 323-483 in 2003, 362-487 in 2004, and 384-514 in 2005.*

3. Measure of Academic Progress - Reading (MAP-R)

Although English is not introduced until the second semester of grade 4, we wanted to know how many students were able to transfer literacy skills developed in French to literacy in English in grades 3-5. Table 6 below gives the percentage of students at or above grade level in English reading in grade 3, 4 and 5. In grade 5, 86% of students performed at or above grade level. Of this group, nearly one-third were reading at a high school level or above.

Table 6: MAP-Reading Performance in English (Fall 2006)

	Grade 3	Grade 4	Grade 5
Total Student Number	45	40	43
Percentage of Students At or Above Grade Level	62%	72.5%	86%

Table 7 shows the same group's results over a period of two years. Note that in the fall of grade 4, English has not yet

been introduced and yet three-quarters of French immersion 4th graders are already performing at or above grade level on measures of English reading clearly indicating that the majority are independently transferring literacy skills acquired through French to English.

Table 7: MAP-Reading Performance in English for One Group of French Immersion Students

	Fall 2005 Grade 4	Fall 2006 Grade 5
Total Student Number	43	43
Percentage of Students At or Above Grade Level	74.4%	86%

Strategies that Have Proven Successful in Preparing Immersion Students for Standardized and other Achievement and Performance Tests

Maryvale teachers have implemented several initiatives to maintain and/or improve French students' performance on standardized tests.

1. **Homework Club** – Teachers provide support once or twice a week to students who are having difficulty completing their homework. Students are referred by the homeroom teacher.
2. **Additional Support in Reading for French Immersion Students in Grades 1 and 2** – This program is designed to ensure that students have a strong foundation in French literacy prior to beginning English literacy. One teacher is assigned part-time (20%) to provide additional support in French reading to first and second graders.
3. **Intensive Basic Math Facts Program** – This school-wide program conducted weekly during the school day helps students develop and/or maintain their math computation skills.
4. **After School Math Program for Grade 2** – Students who are recommended by their teacher attend this program twice a week. It is conducted in English.
5. **Take Home Videos and Booklets** – Students may take home videos and booklets written in English by Maryvale staff to help with Grade 2-5 math and Grade 2 language arts.
6. **Test Nights** – During these evenings at school Maryvale staff help parents understand what is required for the different tests and how they can help the school better prepare their children.

Conclusion

The implementation of No Child Left Behind (NCLB) legislation in the U.S. has increased performance pressure on foreign language immersion programs. They are expected to be able to demonstrate student achievement on standardized tests administered in English even when students' subject matter instruction and initial literacy development is taking place in the non-English, immersion language. The assessment data presented here provide local evidence that early total French immersion students can successfully meet state and district achievement goals. Moreover, disaggregated data offer evidence that the achievement gap among ethnically diverse groups of learners is reduced over time with sustained participation in the immersion program. It also shows that our Hispanic population encounters greater difficulties in the program than other populations, highlighting an area in need of further study.