

# **A National Study of School Effectiveness for Language Minority Students' Long-Term Academic Achievement**

## **Findings from a Mid-sized Urban Research Site in the Southeast U.S.**

### **The Regional Social Context**

For the most part, the linguistically and culturally diverse populations that exist in the states of the southeast U.S. are recent arrivals of the past one or two decades. The major exception to this demographic pattern in the southeast is the state of Florida, where significant numbers of immigrants from Cuba have been arriving since the early 1960s, when Fidel Castro's 1959 takeover of Cuba led to the first exodus of Cuban settlers to south Florida. Since then, succeeding groups from Cuba, Haiti, and other Caribbean countries, as well as Central America and other parts of Latin America have continued to send a steady stream of new settlers to Florida. Serving as a major shopping center for Latin America, Miami makes use of its diverse languages spoken by the city's population to supply businesses with the bilinguals needed for the flourishing local economy. Educators have responded to Florida's linguistically diverse population by providing ESL support and mostly transitional forms of bilingual schooling, although some two-way enrichment Spanish-English bilingual schools exist in several urban school systems in the state.

In contrast to Florida's experience with immigrants, the Old South of the early 1950s was still racially segregated, with blacks and whites attending separate schools and blacks not allowed to use most public facilities. International visitors were tolerated in education settings but it was assumed that those visitors would go back home. With the 1954 Supreme Court decision *Brown v. Board of Education*, segregation of whites and blacks in schools was ruled unconstitutional, and the southeastern states began a slow process of integrating schools. Following this

development, two other significant national policies during the 1960s opened the door for future demographic changes in the southeast, not yet foreseen at that time. One was the Civil Rights Act of 1964, which bans discrimination on the basis of "race, color, or national origin" in any federally assisted program. This led to eventual desegregation of public facilities throughout the U.S., and a gradual lessening of the separation of blacks and whites in the southeast. As blacks began to have the socioeconomic and educational opportunities to move out of positions of menial labor and into white collar and service occupations, this paved the way for more migrant laborers from Mexico and Central America to move into low-paid positions vacated by blacks.

The second significant development occurred when the amendments to the Immigration and Nationality Act of 1965 removed quotas, giving peoples of all countries of the world the opportunity to emigrate to the U.S. Previous immigration policies had favored European immigrants. Few policy makers foresaw that this provision would increase immigration significantly, especially from developing countries (Smith & Edmonston, 1997). In the southeast U.S., the trickle of immigrants began with seasonal migrant workers, who tended to the agricultural crops and moved from rural community to community, just as in other parts of the U.S. At the same time, word spread in Mexico and Central America that there were new economic opportunities and more open policies toward immigration, and Hispanic immigrants began to arrive in initially small numbers in the urban centers of the southeast during the 1970s and 1980s. By the 1990s, with less discrimination openly expressed towards people of color, Hispanic migrant farm workers also began to settle in established communities, mainly in urban areas. With the flourishing economy of the 1990s, southeastern states such as Georgia and North Carolina found it necessary to recruit groups of workers from Mexico and Central America, to occupy jobs that otherwise went unfilled. Thus a region that half a century ago had well established social rules for legal segregation between groups has gradually become more diverse and increasingly tolerant of the new arrivals, for the sake of economic development.

Educators' response to these new arrivals in the southeastern states generally has been to build on the experience of other states, starting with ESL support, and to add some bilingual services when a sufficient number of students of one language background are enrolled. Most southeastern U.S. cities have a variety of languages represented among their immigrant population, but the majority are Spanish speakers. With the exception of Florida, very few southeastern states have enacted state legislation supporting state funding or policies for the education of language minority students; thus decisions regarding programs are largely left up to the local school district. As in the northwest U.S., schools in the southeast are struggling to provide appropriate and meaningful curricular assistance for these new arrivals, since this is a relatively recent phenomenon. One of our urban school district sites located in the southeast that has had over two decades of experience working with increasing numbers of immigrant arrivals provides a regional example of school responses to the needs of these students. Since this school system has not self-identified, in this report it is referred to as District E.

### **The School District Site**

This mid-sized urban school district currently serves over 18,000 students, 40 percent of whom qualify for free or reduced lunch. Language minority students represent 44 percent of the total school population, while students of Euro-American background are 41 percent and African-Americans are 15 percent of the total. As is true of most of our school district sites throughout the U.S., Hispanics are the fastest growing group in this school district, from 10 percent of the total enrollment in the early 1980s to 33 percent in 2000. Asian-Americans are currently 10 percent of the total school population.

In 1975, in this school district there were fewer than 900 English language learners receiving ESL pullout one hour per day. As of the year 2000, there were over 4,600 English language learners

attending ESL pullout, ESL content, one-way or two-way developmental bilingual education classes. ELLs receiving bilingual/ESL services are one-fourth of the total school population and 58 percent of the language minority school population. While over 80 languages and 96 countries are represented among the English language learners, the large majority are Spanish speakers (72 percent) from the United States and Latin America. Whereas in the early 1980s this school district was serving mostly first-generation immigrants just recently arrived, two decades later it is receiving increasing numbers of second-generation U.S.-born students, some of whom are the children of their graduates and dropouts. Almost 50 percent of the current English language learners of District E were born in the United States, and thus are U.S. citizens.

This school district provides an interesting glimpse at education decision-making for English language learners who have experienced difficult life circumstances that often lead to poor achievement in school. Many of these students, as well as their parents, have experienced interrupted schooling in their home countries for a variety of reasons. These include fewer school hours per day because of overcrowded schools, or limited accessibility to formal schooling in remote or rural regions, or missed years of schooling because of war or political instability, as well as sometimes long periods of family separation. As of 1994, 25 percent of the entering kindergarten Hispanic students tested very low in proficiency in both their native language, Spanish, as well as in English, and this pattern continued for the next several years. Given these challenges, which are increasingly common for school districts across the U.S. receiving newcomers from many varied circumstances, more support for these students is clearly needed than that required for middle-class native-English-speaking students who are achieving on grade level.

District E has made a commitment to continue to increase the academic achievement of all students, including closing the achievement gap between whites and minorities. Overall, as a total

group, students of this school district score well on standardized tests, and the high school graduation rate is 93 percent, with 90 percent of the graduates continuing in post-secondary education. But when achievement levels are broken down by subgroups, language minority and African-American students are scoring significantly below the level of Euro-American students, but making some gains towards closing the achievement gap with each year of school. In this report, we are focusing on the patterns of achievement among language minority students, with special focus on those language minority students who began school with limited proficiency in English. We shall concentrate most of our focus on the ESL content program, since that is the longest-running program, serving the largest number of students.

### **Programs for Language Minority Students in District E**

**ESL pullout.** At the elementary school level, the first program in this district developed for English language learners was an ESL pullout program. Each ESL teacher served as a resource teacher for many classrooms in one school. ESL students were pulled out of their mainstream classroom to work with the ESL teacher for one period per day, focusing on developing listening and speaking skills in English. At the secondary level, students received one period of ESL instruction focused on teaching the grammar structure of English.

ESL pullout is still used in some elementary schools in the district where there are not sufficient numbers of ESL students to provide more support, but the focus of the ESL teacher's lessons now includes reading and writing in English as well as oral skills, taught through some curricular content. In some schools, ESL students are given extra assistance within the mainstream classroom, through an ESL inclusion model, where the ESL teacher supports or teams with the mainstream teacher for a small number of ESL students. At secondary level, all instructional support is now provided through ESL content classes.

**ESL content.** By the early 1980s, with increasing numbers of ELLs entering the school system, the ESL pullout program was restructured to provide more varied approaches to teaching ESL, not just focusing on the English language, but teaching English through academic content. As more certified ESL teachers and bilingual support staff were hired with each succeeding year, and staff development sessions strengthened the skills of the teachers, the ESL content curriculum was expanded until it covered material parallel with that of the mainstream curriculum for all subject areas. New arrivals with little or no proficiency in English were assigned to ESL content teachers for a significant proportion of the school day.

The current ESL content program integrates the teaching of language with content area instruction across the curriculum through thematic units that are cognitively complex while instructionally appropriate for the students' level of English proficiency. Students with beginning and low-intermediate levels of ESL proficiency are generally taught by the ESL content teachers for a full academic day at secondary level and a half-day at elementary school level. ESL beginners interact with native-English speakers for physical education, art, and music. Sometimes ESL teachers team with mainstream teachers or a bilingual teacher or bilingual teaching assistant might team with an ESL teacher. Advanced ESL students gradually move towards the mainstream with less time spent with the ESL content teachers.

**One-way developmental bilingual classes.** After analyzing collaboratively with us the longitudinal progress of students who had attended the ESL content program, district staff decided that students who did not have the opportunity to be formally schooled in their first language were doing the most poorly in school. Given the large number of Spanish speakers with great needs, including English language learners who were testing low in proficiency in both languages when they entered kindergarten, the ESL/bilingual staff decided to expand their bilingual

services, beyond counseling and providing translation for families, to a half-day of literacy development through social studies and science content instruction in Spanish for Spanish speakers. They based this decision on a review of available national research on effective programs for ELLs and on their local data analyses and needs assessments.

This decision led to a formal program that was implemented in four elementary schools, beginning with kindergarten, and adding one grade each year. Spanish-speaking students whose parents have chosen for them to be in this program spend half a day in content instruction in Spanish and half a day in content instruction in English. In this report, we will not present student achievement data from this program, because the students have not yet been tested on any nationally normed test, since they have only reached the second grade. However, we have observed that, on informal measures of reading achievement in English, students in this one-way DBE program are outscoring their comparison groups attending ESL content classes without first language support. Hispanic parents have heartily supported the program and want to see it continued and expanded, since their children are enthusiastic participants and are doing well in school.

**Two-way bilingual classes.** This school district also developed 50-50 Spanish-English bilingual schooling for students at four elementary schools and continuing at one middle school. The program initially was developed by the foreign language department primarily to serve native-English speakers whose parents wanted their children to acquire Spanish. Over time, the program has evolved into a two-way program with native-Spanish speakers invited to participate in the classes. Our data analyses will not include students attending this program, since it is not part of the services provided by the bilingual/ESL department.

**Teacher credentials and teaching practice.** All bilingual/ESL classroom teachers of this school district are certified ESL teachers, with two-thirds of the teachers of the school system holding masters degrees. The school system provides extensive staff development support each year for all teaching staff, and many of the courses offered through staff development have led to new curricular initiatives on the part of the faculty. Over the years of the program, increasing numbers of Hispanic teachers and teacher assistants who come from the students' countries of origin have been hired. These teachers provide significant bicultural support for the students and they are able to counsel families in their home language. Teaching practices include extensive use of cooperative learning, thematic units that integrate subject areas across the curriculum, multiple intelligences research and learning styles research applied to bilingual learners, whole language approaches to literacy development combined with balanced literacy instruction, activating students' bilingual/bicultural knowledge, multicultural literature, authentic assessment, and connecting to families and community knowledge. In the developmental bilingual classes, one teacher provides the instruction for a half day in Spanish and an ESL content teacher is the instructor for the English portion of the day.

### **Results in Student Academic Achievement**

**Stage 1 analyses.** We will use the analyses from this school district to provide an example of the research stages that we proceed through as the student databases are gathered year by year. Each stage leads to new analyses and a cycle of collaborative interpretation of the findings and their implications for decisions on the school programs provided for language minority students. District E had well-collected longitudinal historical data and lower LM student mobility than is typical of most U.S. school districts. That allowed us to assist them with longitudinal analyses very soon after we began working with them, since there were good records on what type of program the students received and enough LM students remained in the school system for a number of years to analyze how they were doing academically. After we collected and merged

over five years of testing databases, with each student record identified by a unique student ID number assigned to only one student, for Stage 1 analyses, we examined the achievement levels of three distinct groups who had attended this school district for at least five years. These first analyses that we presented to the school district for reflection and interpretation of their meaning are shown in Figures E-1 through E-5 and Tables E-1 through E-5. These findings examined whether the school district, up to that point in time, had met its goals of closing the achievement gap between three significantly different groups of students.

The first group of students, those labeled "former LEPs" in the figures, were those students who, when they first entered the school district in the early elementary school grades, tested very low in proficiency in English. They were assigned to the ESL program. These students received ESL content classes (half day) or pullout classes (with some academic content taught along with language during the ESL pullout time) for 1-3 hours of each school day. After most had received 2-3 years of ESL support, they were assessed as proficient enough in English to enter the curricular mainstream for the full school day. The norm-referenced assessment at Grade 8 (Iowa Test of Basic Skills) measured their performance after at least five years of schooling in English in District E. We chose five years as a minimal time period because the research on length of time for acquisition of a second language used for academic purposes has found that it generally takes students at least 4-7 years to reach on-grade-level performance in second language (Collier, 1989, 1992; Cummins, 2000; Hakuta, Butler & Witt, 2000; Thomas & Collier, 1997).

The second group of students, labeled "LM but never LEP" in the figures, were those language minority students attending District E who tested as proficient in English when they entered this school system. These students of mostly Hispanic (16.2 percent of total school population) and Asian (1.8 percent) background were assigned to the English curricular mainstream from the beginning of their schooling and did not need ESL support. They served as the main comparison

group for former limited-English-proficient students who had received ESL support. The expectation was that after at least five years of English schooling, the former-LEP ESL graduates would eventually catch up to the level of achievement of their language minority peers. Stage 1 of our research was designed to investigate whether this did, in fact, occur.

The third group of students were native-English speakers attending District E. These Euro-American (41 percent) and African-American (15 percent) students were the remaining groups of the school system, serving as another comparison group that represents the level of attainment achieved by the local students who grew up in native-English-speaking families.

The long-term goal of this school district is for all groups to reach comparable achievement levels. This does not mean that the ultimate goal is that all individual students score high on a norm-referenced test. On any given test administration, there are always some high and some low scorers. Thus, there is considerable variation among the individual student scores within a selected group. But equal educational opportunity means that there should be no *groups* of students whose average scores are consistently low year after year while other groups of students are scoring consistently high. So the long-term goal is educational parity for all the student groups of a given school district, whether groups are defined by socioeconomic status, or by linguistic background, or by country of origin, or by ethnicity, or by gender, and so forth.

For District E, how did these three groups do, when they were tested on the difficult norm-referenced tests in the secondary school years, at Grade 8 and then the same students were tested again at Grade 11? Figure E-1 and Table E-1 show their achievement levels on the most difficult subtest, Total Reading, which measures language usage across the curriculum. In order for students to do well on this subtest, they must develop knowledge in all subject areas for their grade level and be able to integrate and apply that knowledge in various problem-solving tasks.

The first group, the ESL Content graduates (former LEPs) who had at least five years of schooling all in English by the time they had reached the 8<sup>th</sup> grade, were the lowest achievers of the school district, reaching the 36<sup>th</sup> NCE (26<sup>th</sup> percentile) in 8<sup>th</sup> grade and the 37<sup>th</sup> NCE (27<sup>th</sup> percentile) by 11<sup>th</sup> grade. Their comparison group of language minority peers (who tested sufficiently proficient in English when they began schooling in District E, so that they were not placed in the ESL Content program) reached the 55<sup>th</sup> NCE (59<sup>th</sup> percentile) by 8<sup>th</sup> grade and maintained that performance at the 53<sup>rd</sup> NCE in 11<sup>th</sup> grade (a non-significant two-NCE difference). This is excellent achievement, above the 50<sup>th</sup> percentile of the norm group of native-English-speakers across the country. This is a high-achieving school district, though, as can be seen in the third group's scores, with the native-English speakers reaching the 66<sup>th</sup> NCE (77<sup>th</sup> percentile) by 8<sup>th</sup> grade and maintaining almost that high a level at the 63<sup>rd</sup> NCE at 11<sup>th</sup> grade.

These three groups' scores followed this same general pattern on all the other subjects tested, as can be seen in Figures E-2 through E-5 and Tables E-2 through E-5. Math, social studies, science, and writing performance were higher than reading performance for all three groups, but each group maintained its same relative position when compared to the other two groups' achievement. In math, the ESL graduates reached the 49<sup>th</sup> NCE (49<sup>th</sup> percentile) in 8<sup>th</sup> grade but their math achievement by 11<sup>th</sup> grade was at the 44<sup>th</sup> NCE (39<sup>th</sup> percentile). Their social studies achievement reached the 46<sup>th</sup> and 44<sup>th</sup> NCE. In science, they were at the 41<sup>st</sup> NCE in 8<sup>th</sup> grade and jumped to the 48<sup>th</sup> NCE by 11<sup>th</sup> grade, a practically and statistically significant gain, close to reaching the 50<sup>th</sup> percentile. For the writing assessment they reached the 38<sup>th</sup> NCE in 8<sup>th</sup> grade and the 47<sup>th</sup> NCE by 11<sup>th</sup> grade, also a practically and statistically significant increase.

In comparison to reading achievement, language minority students entering the school district with proficiency in English scored above the 50<sup>th</sup> percentile on every other measure, at the 61<sup>st</sup>

NCE (70<sup>th</sup> percentile) in math in 8<sup>th</sup> grade and the 55<sup>th</sup> NCE (60<sup>th</sup> percentile) in 11<sup>th</sup> grade, the 59<sup>th</sup> and 55<sup>th</sup> NCEs in social studies, the 57<sup>th</sup> and 59<sup>th</sup> NCEs in science, and the 57<sup>th</sup> and 56<sup>th</sup> NCEs on the writing assessment. Native-English speakers who were not language minority in background scored still higher on these subtests, at the 68<sup>th</sup> and 63<sup>rd</sup> NCEs in math, the 68<sup>th</sup> and 65<sup>th</sup> NCEs in social studies, the 68<sup>th</sup> NCE in science on both the 8<sup>th</sup> and 11<sup>th</sup> grade test, and the 67<sup>th</sup> and 66<sup>th</sup> NCEs on the writing assessment.

After examining their own school district data longitudinally in this way, District E staff chose to work on raising the achievement levels of their most at-risk groups. The lowest achieving students were those who had started school with little or no proficiency in English, the students labeled as "former LEP" in the five figures just examined. Their total reading scores had reached the 37<sup>th</sup> NCE (27<sup>th</sup> percentile) by Grade 11, after receiving a very well-implemented ESL content program. Administrators and bilingual/ESL resource staff of the ESL Department began to reflect on ways to improve their programs.

The ESL content program had already been substantially changed over the years, to increase academic achievement levels of ESL students. The ESL pullout program that was first implemented when immigrant students began to enroll in the school district focused on teaching listening and speaking skills of the English language. As the ESL content program was developed and then expanded, ESL teachers took responsibility for teaching both oral and written English language development, as well as some of the academic content areas. The ESL curriculum grew until it paralleled the mainstream curriculum as much as possible, with six levels of English proficiency development. ESL teachers received many hours of staff development and were given planning time to coordinate with mainstream teachers, so that the ESL students would be prepared for the mainstream. After an extensive programmatic analysis, the staff decided that they had a very well designed and implemented ESL content program, and we agreed. The main

missing instructional support was that they were not yet providing the students with development of literacy in primary language and academic work taught through the students' primary language.

Thus the school district decided to implement some classes taught in Spanish for the elementary school students whose parents chose for their children to receive instruction part of the day in Spanish. The one-way developmental bilingual education classes that grew out of this administrative decision started with kindergarten and have now reached second grade level, with academic subjects taught half of the day through Spanish and half of the day through English. Future analyses will examine how these students are doing in comparison to their monolingually schooled peers. Research results from other school districts have given this school district confidence that these students will ultimately raise their academic achievement to levels higher than that of previous groups who received only the ESL content program.

**Stage 2 analyses: Length of residence in the U.S.** For the readers of this report who are familiar with the classic research studies that have helped define the knowledge base for the field of language minority education, we are using the term "length of residence (LOR)" as it was first used by Jim Cummins (1981) when he published one of the most often-cited studies in this field. In this study, Cummins analyzed immigrants' school achievement data, focusing on two main variables, length of residence and age on arrival in Canada. He found that Canadian school-age immigrants took 5-7 years after their arrival in Canadian schools to reach the grade-level achievement in English of their native-English-speaking peer group. We have conducted studies similar to that of Cummins' work in our analyses of school system databases in the U.S. (Collier, 1987; Collier & Thomas, 1989; Thomas & Collier, 1997), and have found the same general data patterns that Cummins found. However, we have extended the original research questions of Cummins by analyzing many more student background variables and program variations, and by

examining which variables have the strongest influence on student academic achievement in their second language. Finally, we have examined which of these variables can affect how long it takes for former English language learners to reach levels of group performance similar to native-English speakers.

We have found that it can take longer than 5-7 years if some variables are not present, with the most influential variable being the amount of formal schooling that the students received in their primary language. The shortest time frame we have found for groups to reach grade-level achievement in second language is 4-7 years, but that applies only to students who have received quality, grade-level schooling through their two languages. Our Stage 2 analyses examine the original research questions of Cummins (1981) with each dataset. Thus we shall now analyze the influence of length of residence in the U.S. in the datasets currently being examined from District E.

Figure E-6 and Table E-6 present a quasi-longitudinal look at different groups of English language learners who remained in the school district from 3 to 9 years, allowing us to follow their progress across time. All of these students initially enrolled in the ESL Content program, having tested low in proficiency in English when they entered this school system. We classify these analyses as quasi-longitudinal because we are not using a specific pretest measure for this particular display, since there was no available pretest that was comparable to the Grade 11 test for all students. The patterns here, however, are very similar to those in the longitudinal findings. All the points in the figure represent the Grade 11 achievement of former English language learners (ELLs/LEPs) on the Tests of Achievement and Proficiency, which is the 11<sup>th</sup> grade version of the Iowa Test of Basic Skills (ITBS) norm-referenced test. At the 11<sup>th</sup> grade level, this test, as well as the Stanford 9 and Terra Nova and other similar nationally normed tests, provides a strong indicator of students' predicted performance on the SAT and other measures used for

admission to higher education institutions. This is the "ultimate" measure required of students in Grades K-12, the one which most effectively provides a school district with a measure of its level of success at graduating students who will have the opportunity to continue their schooling if they so choose. State standards on state-required academic assessments vary greatly from state to state, so we have chosen in this report to focus mainly on reporting performance on nationally normed tests that may be compared from state to state.

In Figure E-6, these immigrants to the U.S. first took the standardized tests in English after they had been schooled in English for at least three years. Students who had experienced interrupted schooling in their home country before they came to the U.S. are not included in this display. Thus the 11<sup>th</sup> grade students who had 3 years of schooling in the U.S. left their home country sometime during 8<sup>th</sup> grade, and had received that much formal schooling through their first language. Those students in the U.S. for 4 years left home country at 7<sup>th</sup> grade level, and so forth.

For all subject areas (all lines in the figure), with each additional year of schooling in English, each group is making steady progress to a still higher level of achievement through year five. But after that point, additional years of schooling in English do not raise these former LEP students' achievement level further. Since we have found a similar pattern in other school districts' data, we have come to view this peak in performance as the maximum level of achievement that can be expected, based on the particular program the students received. What the maximum level is and when it occurs varies by program type.

In our collaborative interpretation of the data findings with school district staff of District E, we concluded that a variable that appeared to influence the student achievement of those in the U.S. for 7, 8, and 9 years was the amount of formal schooling that they had received in their home country before they came to the U.S. These groups all started at the same level of limited

proficiency in English as assessed by locally developed tests. The main difference between groups, according to ESL/bilingual staff, was the time in their lives when they arrived in the United States. Those arriving at the beginning of 9<sup>th</sup> grade who were tested at the end of 11<sup>th</sup> grade (having been here three years) were the lowest achievers in the figure, but the ESL/bilingual staff agreed that their level of achievement on this difficult test was very appropriate, given that they only had three years of exposure to English to date. All they needed was more time—several more years of schooling in English—for them to continue to catch up to grade level (to close the gap).

After 4 years of schooling in English, the ESL content graduates had reached the same level of achievement as those with 7 years of schooling in English. But the latter group left their country after receiving only 3 years of primary language schooling; whereas the former group with much less English instruction had received 6 years of primary language schooling. Those with 8 years of schooling in the U.S. had only 2 years of primary language schooling from their home country, and those with 9 years in the U.S. had received only one year of primary language schooling before they had to leave home country sometime during 2<sup>nd</sup> grade. In other words, these lower achievers had 1-3 years of primary language schooling before arrival in the U.S. The highest achievers, those who had been schooled in the U.S. for 5-6 years, had received 4-5 years of primary language schooling before arrival in the U.S. These findings gave further confirmation to the decision to provide some primary language (L1) content instruction for students with little or no formal schooling in L1.

Figure E-6 also provides a useful view of variations in achievement by curricular subject. We have seen this pattern repeated in many school district datasets. Reading achievement is consistently the lowest of all subjects, as measured by nationally standardized tests. As stated before, this is the most difficult subtest because it measures problem-solving across the curriculum. For that reason, we focus on this subtest as the ultimate attainment when summarizing patterns in the

achievement data. These students reached their highest levels of performance in second language in math and science sooner than in other subjects. Social studies is a still more difficult subtest in which to demonstrate one's knowledge through one's second language, but the reading measure is the most difficult subtest of all because it is combining social studies, literature, math, and science knowledge. On the reading measure, these ESL Content graduates reached the 23<sup>rd</sup> NCE (10<sup>th</sup> percentile) after 3 years of schooling in English, the 29<sup>th</sup> NCE (16<sup>th</sup> percentile) after 4 years, the 36<sup>th</sup> NCE (26<sup>th</sup> percentile) after 5 years, and maintained relative performance at the 35<sup>th</sup> NCE (24<sup>th</sup> percentile) after 6 years of schooling in English. These are statistically and practically significant gains in closing the achievement gap. But no succeeding groups of ESL Content graduates with more than 5 years of schooling in English were able to close the gap further.

Figure E-7 and Table E-7 illustrate the analyses from the next school year, examining the same question to see if any patterns had changed. This time the data was grouped according to the LOR patterns seen in the previous year's analyses. Similar patterns are present in this data. The groups with the highest achievement were consistently those with 4-6 years of schooling in English and at least 3-5 years of schooling in primary language in home country before they emigrated to the U.S. This group reached the 32<sup>nd</sup> NCE (20<sup>th</sup> percentile) in reading, the 40<sup>th</sup> NCE (32<sup>nd</sup> percentile) in math, the 39<sup>th</sup> NCE (30<sup>th</sup> percentile) in social studies, the 42<sup>nd</sup> NCE (35<sup>th</sup> percentile) in science, and the 41<sup>st</sup> NCE (34<sup>th</sup> percentile) in writing on the difficult 11<sup>th</sup> grade norm-referenced test.

Age on arrival, the second variable that Cummins analyzed, was a parallel variable with length of residence. Those students who received only 1-3 years of primary language schooling in their home country before coming to the U.S. for the remainder of their schooling were the youngest age group on arrival, ages 6-8. This group was the lowest-achieving group among those in the U.S. for 5-9 years, even though they had the longest exposure to the English language.

**Stage 5 analyses: Prior formal schooling in home country.** Since only one program type—ESL content—was provided for English language learners when we first began working with this school district, Stage 3 analyses were not applicable (comparing program types). Thus we moved on to Stage 4, by adding more cohorts with each additional year of the program. Results of these analyses did not yield any significant changes in the student achievement levels reported above, under Stage 1 and Stage 2 findings. Finally, having achieved generalizability with sufficient numbers of students of similar background in each cohort (Stage 4), we moved to Stage 5 analyses, to examine student background variables and their influence on student achievement.

Stage 2 analyses (presented above) identified three variables that appear to have strong influence on English language learners' academic achievement in English—the number of years of primary language schooling, the number of years of schooling in English, and students' age upon entry in U.S. schools. These three variables are strongly interrelated. First, these students need at least 4-7 years of schooling in English to acquire enough proficiency in academic English. As stated earlier, our findings as well as those of other researchers, demonstrate that this is the shortest amount of time in which a group of students can reach grade-level performance on standardized tests in their second language. Second, these same students may never make it to grade-level performance without several years of primary language schooling, provided either in home country or in host country. Our findings from other school districts demonstrate that 4-5 years of primary language schooling are needed to reach grade level in second language. Third, age on arrival is connected to year of arrival. Thus English language learners who are very young (ages 5-8) when they enter U.S. schools and who do not receive any primary language schooling are the most "at risk" group for not achieving long-term achievement gap closure (Collier, 1987; Collier & Thomas, 1989; Thomas & Collier, 1997; as well as the analyses presented above).

Figure E-8 and Table E-8 present the achievement levels of the ESL Content graduates at 11<sup>th</sup> grade by the number of years that their schooling was interrupted in home country, before they came to the United States. This provides a clear and dramatic picture of the impact that lost years of schooling has on these students. Other student background variables in this figure are controlled by creating "blocks," or groups of students with the same or similar background on several different variables. That means that all groups in this figure entered this school district at the same beginning level of English proficiency; they were Spanish speakers; and they were on free or reduced lunch, thus classified as of lower socioeconomic status. Also they all received the same ESL Content program when they first arrived. The main difference among the groups was the number of years below grade level, as assessed upon the students' entry in this school district.

The first group, on the left side of the figure, represents Spanish-speaking LEP students who tested on grade level in Spanish when they arrived, on formal measures in Spanish reading and mathematics. This is the comparison group for the subsequent groups in the figure. The next group of students were one year below grade level upon entry. As can be seen, each additional year of lost schooling in home country results in lower Grade 11 academic performance in English, even when other potential influencing factors are controlled. In reading achievement, the comparison group with no lost schooling was at the 34<sup>th</sup> NCE (23<sup>rd</sup> percentile); one year of lost home country schooling resulted in performance at the 29<sup>th</sup> NCE (16<sup>th</sup> percentile); two years of lost schooling—the 26<sup>th</sup> NCE (13<sup>th</sup> percentile); and three and four years of lost home country schooling—the 20<sup>th</sup> NCE (8<sup>th</sup> percentile) and 19<sup>th</sup> NCE (7<sup>th</sup> percentile) respectively. Having only 23 students in this last group with four years of lost home country schooling may have made this group's achievement slightly higher than if all possible students with this background had been tested. Many of these students with a significant number of years of interrupted schooling had already dropped out of school by the end of 11<sup>th</sup> grade when this test was given. These findings,

combined with the findings above on number of years of primary language schooling needed to raise academic achievement levels in second language, demonstrate that number of years of primary language (L1) schooling is a powerful variable influencing L2 academic performance.

**Stage 5 analyses: Socioeconomic status.** Many educators believe, and numerous research studies have confirmed, that socioeconomic status can be a very powerful variable that influences student achievement. We focused on the influence of this variable by controlling the student background variables of primary language spoken and proficiency in second language. Figures E-9 through E-13 and Tables E-9 through E-13 present our analyses of Spanish speakers who either paid for their lunch, received reduced-price lunch, or received free lunch. The group in the figure labeled "former LEP students" were Spanish speakers who were placed in beginning-level ESL classes in the ESL Content program upon their arrival in the school district. These students had been in the school district for at least five years when they took the Tests of Achievement and Proficiency (TAP) at the end of 11<sup>th</sup> grade. The group labeled "LM-never-LEP students" were Spanish speakers who tested sufficiently proficient in English when they entered the school district to be placed in the mainstream. The figures demonstrate a visible relationship between family income as measured by paid, reduced price, or free lunch and these students' Grade 11 achievement levels.

Among the three socioeconomic measures—middle income (pay for lunch), low-to-middle income (reduced lunch), and low income (free lunch), on the reading measure (Figure E-9 and Table E-9) the former LEP students reached the 35<sup>th</sup>, 30<sup>th</sup>, and 27<sup>th</sup> NCEs respectively (24<sup>th</sup>, 17<sup>th</sup>, and 13<sup>th</sup> percentiles), with a practically significant difference between the paid-lunch and reduced-lunch groups and between the paid-lunch and the free-lunch groups. The language minority students who were not classified as LEP reached the 52<sup>nd</sup>, 43<sup>rd</sup>, and 39<sup>th</sup> NCEs respectively (54<sup>th</sup>, 37<sup>th</sup>, and 30<sup>th</sup> percentiles), with a very large and statistically significant difference between paid-lunch and

free-lunch groups. However, not being proficient in English upon entry to the school system, and thus getting behind in academic work while learning English, was a stronger influence on ultimate attainment than socioeconomic status (SES), as seen in the contrasting achievement levels between the two groups. For example, the free lunch (lowest SES) students in the language minority group who were proficient in English upon entry were achieving at a higher level—the 39<sup>th</sup> NCE—than the highest SES students who were not proficient in English upon entry, who scored at the 35<sup>th</sup> NCE—again a significant difference. The one group that attained grade-level achievement on this very difficult 11<sup>th</sup> grade academic test that measures problem-solving across the curriculum were those language minority students who entered proficient in English and were from middle-income families, as measured by their ability to pay for lunch. These students reached the 52<sup>nd</sup> NCE (53<sup>rd</sup> percentile), slightly above the national norm group.

Similar patterns are present in the other subject tests (Figures E-10 to E-13 and Tables E-10 to E-13). On math, the language minority groups reached the 55<sup>th</sup>, 50<sup>th</sup>, and 45<sup>th</sup> NCEs, while the former LEP students only reached the 43<sup>rd</sup>, 37<sup>th</sup>, and 37<sup>th</sup> NCEs. For social studies, the language minority students were at the 55<sup>th</sup>, 47<sup>th</sup>, and 44<sup>th</sup> NCEs, and the former LEP students reached the 42<sup>nd</sup>, 38<sup>th</sup>, and 37<sup>th</sup> NCEs. On science achievement, the language minority students were at the 57<sup>th</sup>, 50<sup>th</sup>, and 48<sup>th</sup> NCEs, and the former LEP students at the 45<sup>th</sup>, 40<sup>th</sup>, and 39<sup>th</sup> NCEs. In the writing assessment, the language minority students reached the 56<sup>th</sup>, 50<sup>th</sup>, and 46<sup>th</sup> NCEs, while the former LEP students reached the 44<sup>th</sup>, 39<sup>th</sup>, and 37<sup>th</sup> NCEs.

On all of these subject tests, the free lunch groups performed the lowest. On all measures, the language minority group that paid for their lunch, an indicator of middle-income background, performed at or above grade level at the 52-57 NCE level. But the former LEP students who paid for their lunch only reached the 35-45 NCE level on these measures.

In summary, socioeconomic status as measured by paid, reduced price, or free lunch may have some considerable influence on student achievement. But when students are schooled only in English in U.S. schools, proficiency in English upon entry has a stronger influence than socioeconomic status. Yet when comparing these SES findings to the SES findings in other school districts that provide enrichment bilingual schooling, it is evident that socioeconomic status has much less influence when grade-level academic work is provided in both students' primary language and English. Since schools cannot change students' socioeconomic status or proficiency level in English when students first arrive, it is more appropriate and meaningful to focus on changes in the school program, to meet students' needs. In a following section, we use multiple linear regression to describe our SES findings more completely.

**Stage 5 analyses: Gender.** The final variable that we examined for potential differences in achievement was gender. Figure E-14 and Table E-14 present differences in academic achievement levels by gender among Spanish speakers who were placed in the ESL Content program upon entry and then exited to the mainstream. As with the previous displays, we examined these students' achievement on the Tests of Achievement and Proficiency given at the end of 11<sup>th</sup> grade, after they had received at least five years of schooling in this school district. On the two measures of English language development across the curriculum—reading and writing—males and females reached the same level of performance. Hispanic females and males were at the 31<sup>st</sup> NCE (18<sup>th</sup> percentile) on reading, and at the 40<sup>th</sup> NCE (31<sup>st</sup> percentile) (females) and 39<sup>th</sup> NCE (30<sup>th</sup> percentile) (males) on the writing measure. On the social studies measure, males at the 40<sup>th</sup> NCE outperformed females by 3 NCEs, but this difference is not practically significant. The two subjects in which males outperformed females at significant levels were math (4 NCEs higher) and especially science (6 NCEs higher). These Hispanic males reached the 44<sup>th</sup> NCE (38<sup>th</sup> percentile) on this difficult 11<sup>th</sup> grade science test, while Hispanic females reached the 38<sup>th</sup> NCE (28<sup>th</sup> percentile) in science. These gender comparisons in achievement are similar to gender

differences in the general school-age population.

In Figure E-15 and Table E-15, gender differences are presented for students who are language minority but who tested proficient in English when they entered the school district. Here males significantly outscored females in science by 5 NCEs, while females significantly outperformed males on the writing assessment by 6 NCEs.

**Multiple regression analyses.** We examined District E's data on former English language learners (former LEP students) using simultaneous (direct entry) multiple linear regression in order to examine the unique effect of each of several independent variables. We also used hierarchical stepwise regression to assess the total effect of each variable by assessing the change in multiple  $R^2$  that accompanied that variable's entry into the regression equation. All regression analyses were conducted only on data from students who were assessed as beginning level of proficiency in English when they entered the school district.

In the first series of regression runs, the criterion (dependent) variable was the students' 11<sup>th</sup> grade ITBS/TAP NCE scores in reading. The variables available as predictors were as follows: students' ITBS 8<sup>th</sup> grade reading score, students' socioeconomic status as measured by lunch status (free, reduced, paid), years of prior schooling, years of schooling in English, age on arrival (age at beginning of instruction in English), student gender, years of missed schooling prior to entering District E, and grade completed in prior schooling.

In the first regression, 8<sup>th</sup> grade reading achievement was entered as a covariate in a hierarchical first step, and then the remaining predictors were entered simultaneously in a second hierarchical step, in order to assess their effect on 11<sup>th</sup> grade reading as adjusted by 8<sup>th</sup> grade reading. The adjusted dependent variable thus represented the achievement change, a measure of gap closure,

in reading between grade 8 and grade 11.

Both steps contributed significantly to the total  $R^2$  as seen in Table E-16. The covariate 8<sup>th</sup> grade reading increased  $R^2$  from zero to .39 while the second step, consisting of the seven remaining predictors, explained an additional 9.1 percent of variance in the adjusted dependent variable. Of the seven predictors, only student socioeconomic status had a significant unique effect on reading achievement change. However, the trend was non-linear in that the reduced lunch group had achievement means 9 NCEs lower than the paid lunch group while the free lunch students scored only 2.2 NCEs lower.

In a second series of multiple regression runs, we regressed the seven predictors on 11<sup>th</sup> grade reading achievement without covarying out the effect of 8<sup>th</sup> grade reading achievement. The results appear in Table E-17. In this case, the dependent variable was unadjusted for the effects of 8<sup>th</sup> grade reading, and the effect of the predictors on 11<sup>th</sup> grade reading scores was being examined. The predictors collectively explained 15.4 percent of 11<sup>th</sup> grade achievement, and socioeconomic status, gender, and years of lost schooling were all significant at the .05 level. Specifically, free and reduced lunch students both scored about 5 NCEs lower than the paid lunch group, and males scored about 3 NCEs higher than females by grade 11. In addition, each year of lost schooling reduced grade 11 reading achievement by almost 3 NCEs.

When all predictors were entered in a backward selection procedure (see Table E-18), the variables socioeconomic status, gender, and grade completed in prior schooling emerged as the optimum combination. Grade completed in prior schooling and years of schooling in English were inverse measures of the same construct, but the former edged out the latter in the backward selection process between model steps 6 and 7, as shown in Table E-18. In this analysis, each grade completed prior to entering District E added about 2 additional NCEs to the 11<sup>th</sup> grade

reading score. This means that the most powerful variable influencing student achievement in the long run is the number of years of formal schooling in home country that the students completed. In other words, the more primary language schooling that these students had before arriving, the higher their achievement in English, in the long term.

## **Conclusions**

District E provides an excellent example of the process that a school district goes through from the first years that new immigrants begin to establish themselves in the community to the new decisions that must be made year by year as increasing numbers of language minority students enroll in the school system. This school district staff are exemplary in their collection of long-term data on language minority students, for purposes of program evaluation, in that they collect data on more variables than any of our other school districts. The student background variables that they have collected help to clarify these variables' influence on language minority student achievement in the long term.

Variables identified as powerful in these datasets are the number of years of schooling in students' primary language, age on arrival in U.S., and the number of years of development of academic English. These three variables are interrelated, because students need a significant number of years of both primary language schooling and English schooling to do well in school in their second language. Students who arrived in the U.S. at a young age (between birth and age 8) and thus did not receive enough years of primary language (L1) schooling in home country, did less well than those who arrived when they were older and received at least 4-5 years of grade-level L1 schooling.

From datasets in other school districts, we have seen that students can achieve at higher levels in English when they receive primary language schooling in either home country or host country.

When students receive dual language schooling in the U.S., they are working on both first and second languages simultaneously, and the result is high achievement in the long term. After analyzing the achievement levels of their ESL Content graduates, District E staff chose to add primary language coursework in their curricular offerings for their most "at risk" groups—young Spanish speakers who did not have access to primary language schooling in their country of origin.

The ESL Content program of District E is a carefully conceived program, taught by highly experienced, certified teachers. Staff development and planning time provided for teachers helps the ESL Content teachers to maximize their opportunities to assist students with their academic English development. The achievement levels that these ESL Content graduates reach (mid 30s in NCEs) are high in comparison to many other school districts utilizing ESL Content as a primary program for English language learners' instruction. Yet without grade-level academic work in primary language while acquiring English, these students get behind in their schooling and it is difficult for them to catch up to the constantly advancing native-English speakers who continue to make another year's progress with each year of school. While these students are attending this exemplary ESL Content program, they make more than one year's progress with each year of schooling, but they do not continue that accelerated level of achievement gain in most subjects after moving into the mainstream, thus the achievement gap with native-English speakers is not closed. In fact, only about half of the total gap in reading achievement is closed by the end of 11<sup>th</sup> grade. With the added one-way and two-way bilingual services for increasing numbers of Spanish-speaking students, ESL/bilingual staff expect that the academic achievement gap will be fully closed in the long term. As the students in these programs reach the secondary years, future analyses will reveal the results of work toward this goal.

This school district has made a strong commitment to continuing improvement of their educational services for all students. Its long-term goal is to close the academic achievement gap between groups, so that all groups of students will have equal access to educational opportunities beyond high school. When examining student achievement by ethnicity, the two groups with lower achievement levels in District E are African-American students and Hispanic students. Each year, these two groups' achievement levels are rising. Examining the achievement pattern for Hispanic students in this school district over the past decade is instructive; for this school district is representative of the current or near-future demographics of many mid-sized school districts throughout the United States.

As increasing numbers of Hispanic students have arrived in District E, many have experienced difficult life circumstances, due to war or political instability or poverty in the regions from which they have emigrated. Starting life over, these families are risk takers, and with time their children will overcome the life events that led to interrupted schooling and other factors that influence school achievement. The new arrivals also have to acquire the English language to succeed in U.S. schools, and that will take time. It is important to gather achievement data on two separate groups of Hispanics, as this school district has done, seen in Figures E-1 through E-5. One group are those who are language minorities but they were never classified as limited in English proficiency. They entered the school system proficient in English. The other group is each year's new arrivals who are not yet proficient in English, followed year by year to measure their progress over time.

As seen in Figures E-1 through E-5, language minority students (mostly Hispanic) who entered the school system proficient in English are achieving at or above grade level. This is important to know, for it is unrealistic to expect the other group of Hispanic students not yet proficient in English to be scoring on grade level for several years (4 years being the minimum, achieved only

by those who received schooling through their two languages). Yet as English language learners move along in school, the school district should measure this group's progress across time as well, with the expectation that they will gradually close the achievement gap with each additional year of schooling in the U.S.

The final figures that we present in this report demonstrate these two groups merged into one group. Figures E-16 through E-19 and Tables E-19 through E-22 show the progress of Hispanic students of District E as a group, between 1989-1991 and 1999-2001. During this decade, Hispanics increased in number in this school district, and more arrived with interrupted formal schooling and less proficiency in English. But despite the challenge of serving many students with greater needs, overall the achievement of Hispanic students is being maintained a decade later. After a drop in Hispanic student achievement in the first half of this decade as a result of the increased needs, scores have then increased with each succeeding year. For example, Hispanic student achievement in Grade 4 on the reading subtest was close to or on grade level in 1989-1990, but after lower achievement for several years, the trend has been a steady increase in achievement with each year from 1999-2001, reaching the 48<sup>th</sup> NCE by 2001. Math achievement was at or above the 50<sup>th</sup> percentile for 4<sup>th</sup> and 8<sup>th</sup> graders in 1989-1991 and by 2000, Hispanics had reached the 55<sup>th</sup> NCE in 4<sup>th</sup> grade and the 58<sup>th</sup> NCE in 6<sup>th</sup> grade. Grade 9 students were at the 48<sup>th</sup> NCE, very close to grade-level performance in 2001. On state assessments, two of the bilingual schools met the state standards in 2001.

As with all of our school districts that served as research sites for this study, District E staff do not claim to have all the answers. But their commitment to better serve their community with each additional year of experience working with diverse student populations has led them to increased student achievement and greater clarity about their long-term goals. Minorities have become the majority of this school district's student population. Now receiving the children of

the first immigrants who settled in this community, this school district is clear that closing the achievement gap for all through quality schooling that recognizes and uses the resources that linguistically and culturally diverse students bring to the community will lead to preparation for their own community's future. All their citizens will benefit.