



# RESEARCH BRIEF

Research Services

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## Extended Foreign Language Program in Elementary Grades: Focus on Student Achievement

The Extended Foreign Language (EFL) program is a “school within a school” dual language program in which students are instructed in both English and a language other than English (Spanish or French) with one hour of daily instruction in that language. Most of the schools participating in the program implement the English/Spanish version of dual language instruction.

The implementation of the EFL program began in M-DCPS in 1997. In 2012-2013, the District initiated an expansion of the EFL program that began with grade K students and expanded by one grade level per academic year. In 2016-2017, many elementary schools had implemented the EFL program in their entire grade K-5 span. Generally, students are placed into the EFL program in Grade K at the request of their parents and depending on the number of seats available.

The goal of this Research Brief is to compare the achievement of students in the EFL program with that of their peers and to determine whether learning the second language distracts students from mastering core academic subjects. Because the selection and placement of students into the program are not random, one needs to employ a suitable analytic methodology to enable proper comparisons.

### Sampling

First, students who participated in the EFL program during the 2014-2015 through 2016-2017 period while progressing from Grade 3 to Grade 4 to Grade 5 were selected. Of those students, only the ones with complete sets of Florida Standards Assessment (FSA) results in both English Language Arts (ELA) and mathematics were kept in the sample. Altogether, there were 847 such students in the EFL program. Then, for each of these students, a multivariate matching algorithm was used to pair them with students from the same schools who did not participate in the EFL program during the same period, while matching the students on their English Language Learner (ELL) status, gifted status, having any primary exceptionality (except gifted), and eligibility for the federal free/reduced lunch (FRL) program. In addition, this matching algorithm minimized the multivariate distance between the matched students’ 2015 FSA scores in ELA and

mathematics. As a result of this process, 757 students in 61 EFL schools were matched with their peers not in the program. These students constituted the Program and Comparison Samples.

The demographic and initial academic characteristics of the two samples are shown in the table below.

<b>Student Characteristic</b>	<b>Program Sample</b> n = 757	<b>Comparison Sample</b> n = 757
<i>Percentage of Students who are</i>		
Black	9	5
Hispanic	81	89
White	8	6
FRL	71	71
ELL	12	12
Gifted	6	6
SPED	2	2
<i>Mean Scale Score (Standard Deviation)</i>		
2015 FSA ELA	310 (14.2)	308 (14.7)
2015 FSA Mathematics	309 (15.8)	306 (15.2)

It can be observed that the student samples were well matched both demographically and academically.

## **Analysis**

Each student in the Program and Comparison Samples was assessed three times during the 2014-2015 through 2016-2017 period. Program and comparison students were clustered within the 61 EFL schools that implemented the program in the entire K-5 span. Therefore, the data were hierarchical in nature with test results clustered within students who were clustered within schools. Consequently, a three-level Hierarchical Linear Model (HLM) was used. In this model, the first level represented the linear growth of test results over time. The growth parameters (slope and intercept) from the first level of the model were entered as outcomes in the second (student) level with student characteristics used as predictors. The student-level variables considered were 2014-2015 FRL status, gifted status, SPED status, and ELL status, all of which were dichotomous. All of these student-level variables are generally considered to be associated with student learning outcomes. Therefore, including them as covariates in the statistical model served the dual purpose of estimating the effects of these variables on the student achievement outcomes and adjusting the outcomes for student differences on those variables. The third (school) level of the statistical model added an indicator for whether a student was in the Program or Comparison Sample. No school-level variables were used in the model because the

students in the two samples were attending the same schools, so no adjustment for school-level differences was necessary. A separate model was fitted for FSA ELA vs. FSA mathematics outcomes. All data analyses used in this analysis used the conventional .05 level of statistical significance.

## Results

The results of fitting the first level of the model (assessment results within students) with no predictors used at the other levels indicated that the linear model of student growth over the three years fit well for both ELA and mathematics. When the student variables were added to the second level of the hierarchy, the results indicated that all of these variables had a statistically significant effect on the student test results. On the other hand, none of the student-level variables considered had a statistically significant effect on the rate of annual academic growth in either subject, indicating that the rates of growth in student achievement were approximately equal and independent of student characteristics. The average rate of student academic achievement growth was found to be approximately 11 scale score points per year for ELA and 11 scale score points per year for mathematics.

The estimated effects of student-level variables on student achievement in any of the three years are shown in the table below.

<b>Student Characteristic</b>	<b>ELA</b>	<b>Mathematics</b>
Eligible for the FRL program	-4.2	-4.5
ELL	-9.6	-6.2
Gifted	15.7	13.2
SPED	-5.4	-5.0

The results displayed in the table above can be interpreted in the following way. Using the effect for ELL as an example, one can say that when all other student characteristics are the same, ELL students scored 9.6 scale points lower on average than their non-ELL counterparts on the FSA ELA and 6.2 scale score points lower on average on FSA mathematics.

When the program indicator for EFL participation was added as a predictor to the third level of the model, it turned out to be a non-significant predictor of either the achievement scores or of the rate of increase in the achievement scores in either subject. In practical terms it means that both the average student achievement and the rate of annual growth in student achievement were approximately the same for students in both the Program and Comparison Samples in both academic subjects.

## Conclusion

One of the main objections to bilingual education often stated by its critics is that learning the second language distracts students from mastering core academic subjects, such as ELA and mathematics. The results of the analysis of the 2015 through 2017 FSA outcomes showed no evidence to support this claim. Students in the Program Sample exhibited achievement results in ELA and mathematics that were on par with those of demographically and academically similar students. In addition, the rates of annual achievement growth in both academic disciplines were similar for program and comparison students. This finding indicates that learning another language did not divert EFL students from learning ELA and mathematics. Furthermore, it suggests that the EFL program provided a valuable benefit to participating students in elementary grades: gaining knowledge of a second language while keeping on par with similar students not in the program in core academic subjects. It is reasonable to expect that the knowledge of the second language, if properly maintained throughout the school years, will prove to be a valuable asset to students in their post-graduation endeavors.