

K-12 Education: Student, Teacher, and School Characteristics Associated with English Learners' Academic Performance

GAO-24-106360 Q&A Report to Congressional Requesters July 25, 2024

Why This Matters

English learners are a diverse and growing group of students. Between fall 2010 and 2020, English learners in U.S. K-12 public schools grew from 4.5 million to 5.0 million students. Most English learners are born in the United States. They speak more than 400 languages and represent a wide range of cultures, grade levels, experiences, and backgrounds. School districts are required to take affirmative steps to ensure students with limited English proficiency can meaningfully participate in the district's educational programs and services. In addition, states are required to assess the English language proficiency of English learners on a yearly basis.

We were asked to examine academic achievement of English learners. For this report, we examined the characteristics associated with English learners' academic achievement, their progress toward English proficiency, and growth in their reading scores over time. We conducted multivariate regressions using three federal Department of Education data sets to explore the relationship between several academic performance outcomes and a variety of student, teacher, and school characteristics. Regressions are a statistical method that explore whether a relationship exists between two or more variables (e.g., poverty and reading scores), while accounting for other characteristics that may affect the scores.

Key Takeaways

Our regression analyses found that various student, teacher, and school characteristics are associated with the academic performance of students who are English learners:

- Student characteristics: Being female, having positive feelings about school, and being Asian were associated with higher reading scores. In contrast, feeling disconnected from school, frequent absences, having a disability, and being economically disadvantaged were associated with lower reading scores.
- Teacher characteristics: For some student groups, having a teacher of the same race was associated with higher scores in math or reading.
 Overcrowded classrooms and high levels of teacher absences were significantly associated with lower reading and math scores and less progress toward English proficiency.
- School characteristics: Characteristics such as school size and socioeconomic composition were associated with English learners' academic performance and progress toward English proficiency. Over time, schools with higher percentages of students enrolled in dual language immersion English instruction were associated with slightly higher rates of growth in reading scores.

Who are English learners?

In general, English learners are K-12 students whose native language is not English, and whose difficulties in speaking, reading, writing, or understanding English may affect their academic success in classrooms where instruction is in English. For federal reporting purposes, students are considered English learners only while they are eligible to receive language instruction services. Once students become proficient in English, they are no longer classified as English learners. Achievement data and factors affecting their long-term academic performance are therefore limited, since data on these students are generally not tracked separately once they become English proficient.

What are the federal and state roles in ensuring English learners attain English proficiency? The Department of Education's role includes providing supplemental funding to states specifically for efforts that support English learners. English learners may also benefit from attending a school that receives federal funding for high numbers of low-income students, as they are generally concentrated in these schools. As part of Education's civil rights function, it also requires districts to address barriers that impede equal participation by English learners (see textbox).

Relevant Federal Laws Administered or Enforced by the Department of Education

- The Elementary and Secondary Education Act of 1965, as amended, (ESEA):
 - Title I, Part A provides financial assistance to districts and schools with high numbers or high percentages of children from low-income families to help ensure that all children meet challenging state academic standards.
 - Title III of the ESEA provides supplemental funding to help ensure that English learners attain English proficiency, achieve at high academic levels, and can meet the same challenging state academic standards that all children are expected to meet, among other things.
- Title VI of the Civil Rights Act of 1964 (Title VI) prohibits discrimination on the basis of race, color, or national origin in any program that receives federal funds or assistance. In order to comply with Title VI, school districts must take affirmative steps to ensure that students with limited English proficiency can meaningfully participate in the district's educational program and services.

Source: GAO summary of federal laws and agency information. | GAO-24-106360

States' roles include providing guidance to districts for identifying English learners and monitoring districts to ensure that students receive appropriate services.

What data does Education collect on English learners' academic performance? Education collects a variety of performance data on English learners, which allowed us to examine achievement at the student, teacher, and school levels across multiple performance indicators (see table 1).

Data Source	ED <i>Facts</i> (state English proficiency assessment data)	National Assessment of Educational Progress (national assessment data)	Early Childhood Longitudinal Study (longitudinal assessment data)
Population	All K-12 public schools	Sample of 4 th and 8 th grade students	Sample cohort of K-5th grade (2010-11 cohort)
Years	2018, 2019, 2021	2019	2010–2016
Student		X	X
Teacher		X	X
School	Х	X	Х
Performance indicator(s)	Percentage of English learners who are proficient based on a state English language proficiency assessment	Scores on national reading and math assessments	Growth over time in reading scores on the assessment used by the study.
	Percentage of English learners making progress toward English proficiency		

Source: GAO summary of information from the Department of Education, the National Center for Education Statistics, within the Institute of Education Sciences. | GAO-24-106360

Notes: EDFacts centralizes performance data supplied by state education agencies, including performance on state English language proficiency assessments and progress toward English proficiency.

The National Assessment of Educational Progress is a nationally representative assessment of what students in the United States know and are able to do in various academic subjects.

The Early Childhood Longitudinal Study program is a nationally representative study about children's knowledge, skills, and development from birth through elementary school. The kindergarten (K) class of 2010-11 cohort is a sample of children followed from kindergarten through the fifth grade.

Which student characteristics were associated with the academic performance of English learners?

Our regression analyses found several characteristics, such as students' English proficiency, gender, economic status, and disability status were associated with the academic performance of English learners (see table 2).

Table 2: Student Characteristics Associated with English Learner Performance			
Performance measure	Characteristics associated with better performance	Characteristics associated with worse performance	Characteristics with unknown, inconsistent, or no apparent association ^c
National reading assessment ^a	Both 4th and 8th grade Has an advanced level of English proficiency in listening, speaking, reading, and writing* Has an intermediate level of English proficiency in speaking, reading, and writing Is Asian Is female Feels happy at school Tries hard even after making mistakes Likes complex problems more than easy problems tikes complex problems Has an intermediate level of English proficiency in listening Is the same race/ethnicity as the teacher* Has received 3 or more years of instruction primarily in English Bth grade only Is a former English learner Took a non-English/bilingual version of the test*	Both 4th and 8th grade Number of absences from school Lives with guardian or foster parent Feels awkward and out of place at school about half of the time or more* Is Black-Hispanic Is economically disadvantaged Has certain disabilities 4th grade only Lives with father or stepfather	 Received test accommodations other than using non-English/bilingual version of test Is a race/ethnicity other than Asian or Black-Hispanic Student's primary language is Spanish vs. other non-English language

Performance measure	Characteristics associated with better performance	Characteristics associated with worse performance	Characteristics with unknown, inconsistent, or no apparent association ^c
National math assessment ^a	4th and 8th grade Has an advanced level of English proficiency in listening, speaking, and writing Has an intermediate level of English proficiency in speaking and writing Is Asian Feels happy at school Tries hard even after making a mistake Likes complex problems more than easy problems 4th grade only Has an intermediate level of English proficiency in listening and reading* Is two or more races or unknown race non-Hispanic* 8th grade only Feels awkward or out of place at school less than half the time vs. never or hardly ever Is the same race/ethnicity as the teacher* Lives with mother/stepmother*	 4th and 8th grade Is female Number of absences Lives with guardian or foster parent Is economically disadvantaged Has certain disabilities 4th grade only Student's primary language is Spanish Is Native Hawaiian or Pacific Islander Feels awkward and out of place at school more than half or all or most of the time Gets help/tutoring with math after school 8th grade only Took a non-English version of the test* Received one or more years of English language instruction Is Black-Hispanic* Is Black non-Hispanic Lives with father or stepfather 	 Is a former English learner Received test accommodations other than using non-English/bilingual version of test Has reached an advanced level of English proficiency in reading
Growth over time on reading skills ^b		 Is female Lives with one biological/adoptive parent Lives with other guardian Speaks a non-English language not including Spanish vs. English only 	 Born in the United States Has a disability Number of absences Likes to come to school Classmates make them feel happy Student's race/ethnicity

Source: GAO analysis of the Department of Education's 2019 National Assessment of Educational Progress, Early Childhood Longitudinal Study, Kindergarten Class of 2010-11, 2010-2016. | GAO-24-106360

^aThe analysis of the national reading and math assessments for fourth and eighth grade was restricted to current and former English learners attending public schools. For national reading and math assessments, the characteristics associated with better and worse performance are statistically significant at the 99% confidence level. Characteristics which are statistically significant at the 95% confidence level are denoted with an asterisk (*) and may be less precisely estimated. Please see GAO supplement for more information (GAO-24-107485). The last column represents characteristics that are not significant at the 95% confidence level.

^bOur analysis on the growth of English learner reading scores was restricted to English learners who scored below average in their second grade reading assessment and attended public school. Growth in scores was calculated by subtracting spring 2nd grade reading score from spring 5th grade reading score. For growth in reading skills, characteristics associated with better and worse performance are statistically significant at the

90% confidence level; and the last column represents characteristics that are not significant at the 90% confidence interval.

^cA factor may not be significant in our regression because of small sample sizes, poor quality data, missing data, or because there is no association with performance. There are additional variables that had no association that can be found in the supplemental materials (GAO-24-107485).

Which teacher characteristics were associated with the academic performance of English learners?

Our regression analyses found that for some student groups, having a teacher of the same race was associated with higher scores in math or reading. Characteristics such as teacher absences and classroom overcrowding were associated with lower academic performance of English learners (see table 3).

Performance measure	Characteristics associated with better performance	Characteristics associated with worse performance	Characteristics with unknown, inconsistent, or no apparent association ^c
National reading assessment ^a	Both 4th and 8th grade Has 21 or more students 4th grade only Is satisfied with current teaching job* Has been awarded tenure Is the same race/ethnicity as the student 8th grade only Has 16–20 students* No school or district tenure available*	 4th and 8th grade Reports classrooms are overcrowded* More than 10 percent of teachers in the school are absent on an average day 4th grade only Teaches jointly as a team about every day* 8th grade only Has 1–2 years of teaching experience vs. less than 1 year Has a Bachelor's degree vs. high school diploma* 	 Has more than 2 years of teaching experience Entered teaching through alternative route Holds valid teaching certificate Teacher's gender Holds education specialist or associate's degree/vocational certificate vs. high school diploma Amount of time spent on reading instruction Availability of teachers certified to teach English learners or bilingual teachers, reading specialists or literacy coaches, and paraprofessionals or aides trained to work with English learners

Performance measure	Characteristics associated with better performance	Characteristics associated with worse performance	Characteristics with unknown, inconsistent, or no apparent association ^c
National math assessment ^a	 4th and 8th grade Has more than 30 students* 4th grade only Has 16–20 students* 8th grade only Is the same race/ethnicity as the student Bachelor's, master's, doctoral, or professional degree vs. high school diploma* Has 1–2 years of experience vs. less than 1 year* 5 hours or more spent on math instruction* 	4th and 8th grade Reports classrooms are severely overcrowded 4th grade only Not planning to get teaching certificate* 6–10% of teachers absent on average day vs. 0–2%* 8th grade only Teaches a class jointly as a team Reports classrooms are moderately overcrowded	 Is satisfied with current teaching job Holds valid teaching certificate Entered teaching through alternative route Has been awarded tenure Teacher's gender Education specialist, associate's degree, or vocational certificate vs. high school diploma
Growth over time on reading skills ^b	Principal reports teacher absences are a minor problem (5 th grade)	 Principal reports teacher absences are a serious problem Percent of teachers who teach English as a second language 	 Number of years of experience Teacher agrees they can teach English learners Ratio of total enrollment to full-time teacher Ratio of English learners to teachers

Source: GAO analysis of the Department of Education's 2019 National Assessment of Educational Progress, and Early Childhood Longitudinal Study, Kindergarten Class of 2010-11, 2010-2016. | GAO-24-106360

^aOur analysis of the national reading and math assessments for fourth and eighth grades was restricted to current and former English learners attending public schools. For national reading and math assessments, the characteristics associated with better and worse performance are statistically significant at the 99% confidence level. Characteristics which are statistically significant at the 95% confidence level are denoted with an asterisk (*) and may be less precisely estimated. Please see GAO supplement for more information (GAO-24-107485). The last column represents characteristics that are not significant at the 95% confidence level.

^bOur analysis of the growth of English learner reading scores was restricted to English learners who scored below average in their second grade reading assessment and attended public schools. Growth in scores was calculated by subtracting spring 2nd grade reading score from spring 5th grade reading score. For growth in reading skills, characteristics associated with better and worse performance are statistically significant at the 90% confidence level; the last column represents characteristics that are not significant at the 90% confidence interval.

^cA factor may not be significant in our regression because of small sample sizes, poor quality data, missing data, or because there is no association with performance. There are additional variables that had no association; these can be found in the supplemental materials (GAO-24-107485).

Which school-related characteristics were associated with academic performance of English learners?

Our regression analyses found characteristics such as school size and socioeconomic composition, were associated with English learners' academic performance (see table 4).

Table 4: School	ol Characteristics Associ	ated with English Learner P	erformance
Performance measure	Characteristics associated with better performance	Characteristics associated with worse performance	Characteristics with unknown, inconsistent, or no apparent association ^c
National reading assessment ^a	4th grade only 1–25% of students are Hispanic vs. 0% 51% or more students are Hispanic vs. 0%* 26–50% of students are White vs. 0% 4th grade only Over 50% of students are Black School enrollment in the top three quartiles* 1–25% of students are two or more races* Magnet school*	 4th grade only 1–25% of students are American Indian or Alaska Native 51% or more of students are Native Hawaiian or Pacific Islander 8th grade only 1–2% of 8th graders are held back or repeating vs. 0% 	 School location (city, town, suburb, rural) Other school types (e.g., special education) Percentage of students who are Asian Percent of students receiving targeted Title I services^d Percent of students identified as limited English proficient Percent of 4th graders held back and repeating
National math assessment ^a	4th and 8th grade School enrollment in the top quartile* 4th grade only 51% or more students are Asian vs 0%* 1–25%*, and 26–50% and 50% or more students are White vs. 0% 6–10% of 4th graders held back and repeating 8th grade only School enrollment in 2 nd and 3 rd quartiles* 26–50% of students are Asian vs. 0% Independent charter school	 4th and 8th grade 26–50% of students are Native Hawaiian or Pacific Islander* 4th grade only 26–50% of students receive targeted Title I services 8th grade only 1–25% of students are American Indian or Alaska Native* 1–25%* and 51% of students are Native Hawaiian or Pacific Islander Over 50% of students are Black* 	School location (city, town, suburb, rural) Other school types (e.g., magnet, special education) Percent of students identified as limited English proficient

Performance measure	Characteristics associated with better performance	Characteristics associated with worse performance	Characteristics with unknown, inconsistent, or no apparent association ^c
Proportion of English learners who are proficient based on the state's English- language proficiency assessment ^b	 Elementary schools† Percentage of students who are Asian Percentage of students who are Hispanic Schools in coastal states Schools with the lowest number of English learners Schools with the highest numbers of total students† 	 Schools with the second highest numbers of English learners Percentage of students who are Native Hawaiian or Pacific Islander Percentage of students who are disabled Schools with the lowest numbers of total students[†] 	 Charter schools Middle schools School location (city, town, suburb, rural) Schools in states that border Mexico Percentage of students who are female Percentage of students who are American Indian or Alaska Native Percentage of students who are Black Percentage of students who are economically disadvantaged
Proportion of English learners making progress on the state's English language proficiency assessment	 Elementary schools Schools in rural areas vs. towns Percentage of students who are Asian Percentage of students who are Black Percentage of students who are female Schools with the lowest numbers of English learners 	 Middle schools Schools with the second highest numbers of English learners Schools in states that border Mexico Schools located in suburban areas vs. towns Percentage of students who are Native Hawaiian or Pacific Islander Percentage of students who are two or more races 	 Large schools Charter schools Schools in urban areas vs. towns Percentage of students who are disabled Percentage of students who are economically disadvantaged Percentage of students who are Hispanic Percent of students who are American Indian or Alaska Native

Source: GAO analysis of the Department of Education's 2019 National Assessment of Educational Progress, and EDFacts data, 2018, 2019, 2021. | GAO-24-106360

^aThe analysis of the national reading and math assessments for fourth and eighth grade was restricted to current and former English learners attending public schools. For national reading and math assessments, the characteristics associated with better and worse performance are statistically significant at the 99% confidence level. Characteristics which are statistically significant at the 95% confidence level are denoted with an asterisk (*) and may be less precisely estimated. Please see GAO supplement for more information (GAO-24-107485). The last column represents characteristics that are not significant at the 95% confidence level.

^bFor English proficiency or progress toward proficiency, the middle columns represent factors that are statistically significant at the 95% confidence level († indicates significance at the 90% confidence level); the last column, not significant at the 95% confidence level.

^cA factor may not be significant in our regression because of small sample sizes, poor quality data, missing data, or because there is no association with performance. There are additional variables that had no association; these can be found in the supplemental materials (GAO-24-107485).

^dTitle I, Part A (Title I) of the Elementary and Secondary Education Act of 1965, as amended, provides financial assistance to districts and schools with high numbers or high percentages of children from low-income families to help ensure that all children meet challenging state academic standards. A targeted assistance program uses Title I funds to help improve the performance of students who are failing, or most at risk of failing, to meet the state's academic achievement standards.

Which school-related characteristics were associated with growth in reading scores for English learners?

Our regression analyses found the dual-language immersion model of English instruction used in the school was positively associated with English learners' growth in reading scores over time (see table 5).

Table 5: School Characteristics Associated with English Learner Growth on Reading Assessments

Performance measure	Characteristics associated with better performance	Characteristics associated with worse performance	Characteristics with unknown, inconsistent, or no apparent association ^a
Growth over time on reading skills	Percentage of students in dual- language immersion	 Schools located in a city, town, or suburb vs. those located in a rural area Principal reports school overcrowding is a serious or moderate problem Percentage of students who are Hispanic Percentage of students who are White School does not offer special meetings with English learner families Percentage of students in dual-language instruction in pullout 	free or reduced-price meals Translators available for parents

Source: GAO analysis of the Department of Education's Early Childhood Longitudinal Study, Kindergarten Class of 2010-11, 2010-2016. | GAO-24-106360

Note: Our analysis on the growth of English learner reading scores was restricted to English learners who scored below average in their second grade reading assessment and attended public schools. Growth in scores was calculated by subtracting spring 2nd grade reading score from spring 5th grade reading score. Characteristics associated with better and worse performance are statistically significant at the 90% confidence level; and the last column represents characteristics that are not significant at the 90% confidence interval.

^aA factor may not be significant in our regression because of small sample sizes, poor quality data, missing data, or because there is no association with performance. There are additional variables that had no association that can be found in the supplemental materials (GAO-24-107485).

Agency Comments

We provided a draft of this report to the Department of Education for review and comment. The agency provided technical comments, which we incorporated, as appropriate.

How GAO Did This Study

To conduct this work, we analyzed three Education datasets to explore the relationship between various academic performance outcomes and a variety of student, teacher, and school characteristics, such as school attendance, that may be associated with performance.⁴ This included the most recently available state performance data from ED*Facts* from 2018, 2019, and 2021, the National Assessment of Educational Progress from 2019, and the Early Childhood Longitudinal Study, Kindergarten Class 2010-2011. Performance outcomes included English learners' scores on national reading and math assessments, state reports of their students' progress toward English proficiency and rates of English proficiency, and growth in English learners' reading scores from the longitudinal study.

Specifically, we conducted regression analyses on each data source. Such models allowed us to test the association between student performance outcomes and any one specific student, teacher, and school characteristics, while holding other characteristics (such as school demographics) constant. Keeping the other characteristics unchanged allows us to isolate the effect of the characteristic of interest by comparing differences between students who otherwise appear very similar to one another.

Our regression model, like all regression models, is subject to limitations. First, factors that may be related to our outcomes of interest may not be available in the data and omitting them could introduce bias to results. Second, ECLS and NAEP data are subject to sampling and nonsampling error. While we accounted for sampling error, nonsampling error cannot be completely accounted for and could affect the precision of estimates. Third, our regression analysis using NAEP data may have standard errors which are underestimated. Fourth, some factors we controlled for were missing or incomplete, which could affect both the bias and precision of our estimates. Lastly, the results of our analyses are associational and do not imply a causal relationship. See GAO-24-107485 for more information on our regression analyses.

Data Sources on English Learner Performance Used in This Study

- EDFacts centralizes performance data supplied by state educational agencies, including performance on state assessments and progress toward English proficiency. It is updated annually. Each state has its own assessments, which are designed to provide individual student data about achievement based on different content standards, unique to each state.
- The National Assessment of Educational Progress (NAEP), also known as the Nation's Report Card, is a nationally representative, continuous assessment of what students in the United States know and are able to do in various subjects. NAEP administers the same assessment in every state, allowing for direct comparisons among states. NAEP includes a range of subjects at grades 4, 8, and 12.
- The Early Childhood Longitudinal Study (ECLS) program is a nationally representative study about children's knowledge, skills, and development from birth through elementary school. The kindergarten class of 2010-11 cohort is a sample of children followed from kindergarten through the fifth grade.

Each database is overseen and administered by the National Center for Education Statistics, within the Department of Education and the Institute of Education Sciences.

Source: GAO analysis of information provided by the National Center for Education Statistics within the Institute for Education Statistics in the Department of Education. | GAO-24-106360

We reviewed studies that were relevant to our research questions to obtain a better understanding of potential control variables and their association with performance, and to identify potential controls used by subject matter experts from studies using similar methodologies. In particular, we reviewed and summarized regression studies that were similar in scope to the objectives of this research. We used these studies to inform our final control variable selection. For more information on the methods and results of this analysis, see the electronic supplement, GAO-24-107485.⁵

To assess the reliability of the data, we reviewed documentation about each system, reviewed Education reports on the data, and conducted electronic testing of the data to check for missing values, calculation errors, and outliers. We determined the data were sufficiently reliable to use in our regressions.

We conducted this performance audit from November 2022 to July 2024 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence

obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

List of Addressees

The Honorable Robert C. "Bobby" Scott Ranking Member Committee on Education and the Workforce House of Representatives

The Honorable Adriano Espaillat House of Representatives

The Honorable Raùl M. Grijalva House of Representatives

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the appropriate congressional committees, the Secretary of the Department of Education, and other interested parties. In addition, the report will be available at no charge on the GAO website at https://www.gao.gov.

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Endnotes

¹See 20 U.S.C. § 7801(20) for the definition of an English learner under the Elementary and Secondary Education Act of 1965, as amended.

²To be considered proficient, students must meet their state's criteria, which must include proficiency on the state's English language proficiency assessment.

³States must report academic data on former English learners for 4 years after the students are no longer classified as English learners, but these data are collected at the district level.

⁴We excluded the 2019-2020 school year because of issues with data collection during COVID-19. We used the school years before and after the 2019-2020 school year to control for changes occurring during the pandemic.

⁵GAO, Supplemental Material for GAO-24-106360: Technical Materials for Regression Analyses on Student, Teacher, and School Characteristics Associated with English Learners' Academic Performance, GAO-24-107485 (Washington, D.C.: July 25, 2024).